THE FARMERS' REGISTER.

VOL. X. APRIL 30, 1842. No. 4.

EDMUND RUFFIN, EDITOR AND PROPRIETOR.

ASHES AS MANURE.

From the New England Farmer.

The following is from "the Transactions of the Society for Promoting Agriculture in the State of Connecticut" :—

"What experiments have been made with ashes? On what soils, for what crops, and for what grasses? What success has attended the use? Are leached or unleached ashes most beneficial as a manure? Do they equally suit upon the same soils, and for the same crops? In what quantities are they to be used?"

Mr. Atwater, of Wallingford. I have made use of leached ashes, as manure for crops and grasses, and find it excellent for both upon dry land. When my grass fails, I plough up my land, and the ashes serve again as manure for a crop, and afterwards for grass. But ashes have not benefited my wet land, that was unfit to plough; for though they in most instances introduce clover, yet the land will soon be covered with moss, when it is rendered unfit for any thing, and if it cannot be recovered from the moss by ploughing, it is injured instead of being benefited.

Mr. Tomlinson, of Milford. We have found leached ashes to be excellent manure for flax.

Mr. Parsons, of Durham. I have used unleached ashes for many years, as manure for Indian corn. I put a handful round each hill, soon after the first hoeing, and have much benefited my crop by this method, having frequently omitted some hills, for the purpose of ascertaining the benefit derived from the ashes. I have always found myself richly repaid both for the manure and for my labor. The greatest advantage has accrued when a rain has followed shortly after my applying the ashes.

Mr. Noah Fowler, of Guilford. I have found, from experience, that leached ashes is a very beneficial manure for wheat and rye. It appears to me to be a great preventive of blasts.

Mr. Andrew Hull, Jr., of Cheshire. I have received great benefit from leached ashes as manure for wheat and rye. But I have not found that it prevented blasts.

Mr. Holcomb, of Simsbury. I have made use of unleached ashes, as manure, for Indian corn, and have derived great benefit from it on dry land. Whenever I have used it for corn, where the land was wet and heavy, it has been of no advantage to the crop at all.

Mr. Wadsworth, of Durham. One of my neighbors planted a field with Indian corn, and applied unleached ashes to thirty-six hills. During the first part of the season, the corn on which the ashes was put appeared much better than that in the other part of the field, to which no ashes was applied. When the corn was gathered, the thirty-six hills, to which ashes was applied and thirty-six adjoining hills which had none were measured, and those which had no ashes were found to be the most productive and to have the superiority over those on which ashes was put. This was on heavy land. The same neighbor made the experiment on light dry land. A part of his crop of corn was ashed and a part was not. Here the ashed corn much exceeded the other.

Mr. Eli Bronson, of Waterbury. In June, 1792, I ploughed a grass field, of a light sandy soil, where much old wood was burned. The ground was very dry. After harvest, I ploughed this fallow again. The drought continued more severe than was perhaps ever known in the memory of man. I observed that all the spots where logs were burned were much more moist than any where else. This circumstance particularly attracted my attention, as I had been taught that ashes were of a hot, droughty nature, suited only to wet land.

In 1795, I planted a wheat stubble, which was new land and sandy soil, which had been thoroughly burned when tilled for wheat. Part of the corn was dressed with a handful of ashes to a hill, at the first hoeing; here, for the first time, within my knowledge, ashes failed of producing any beneficial effect.

Soon afterwards I planted a tough sward, part of which was ashed in quantity as above. The part dressed with ashes grew remarkably, while the other appeared languid and pale, as if grub-eaten, until the second hoeing, after which it began to recover and to thrive better; but it finally produced not more than half as much as the part to which ashes was applied.

From the experiments of myself and my neighbors, I formed the conclusion that not only on new land, which has been recently burned, but also on land which has been kept mellow by tillage for one or two past seasons, and where little or no undissolved vegetable substance remains, no visible benefit accrues; of which the following facts may be considered as farther illustration.

In 1796, I planted corn after rye, the land cloddy and full of stubble; one end of it was very tough, and was planted with potatoes; a few hills of the potatoes, and most of the corn were ashed; some of the corn was dressed with gypsum—all was benefited, but the potatoes much the most.

In 1797, I again planted corn on cloddy land, encumbered with stubble. I carted on barn-yard manure, not well rotted. I ashed a part, by which the crop was enhanced at least one third.

In 1798, I fallowed a lot, much exhausted by ploughing. It was a dry loam, with tender sward. Carted on barn yard manure, ten loads to the acre, and ploughed it four times. I sowed half an acre with wheat, and strewed over the half acre a small load of leached ashes, and eight or ten bushels of unleached ashes. The wheat at first grew surprisingly, and though it did not hold out according to its first appearance, it yielded eleven bushels.

In 1799, I planted corn on buckwheat stubble, loamy soil—I ashed a part of it when coming up, and omitted one row. At first there was an apparent advantage, but by hilling time it could scarcely be discerned, except at one end, where it was somewhat cloddy, and there it might be perceived at harvest time. The other part I dressed with

gypsum, leaving one row as before: the success was the same as with the ashes.

The same year I planted a piece of sward land, loamy soil, and dressed the corn with ashes, omitting one row, as in the other field; began to hoe the corn seven days after the ashes was applied, when the hill in the unashed row, which we crossed in hoeing, was every where noticed from being yellow, while the other was a lively green. After the second hoeing, a second dressing of ashes was applied on part of the lot, but without effect, even on part of that row, which was omitted in the first dressing. About hilling time, the unashed row began to recover; but finally yielded at harvest, little if any more than half as much as the adjoining rows.

The same year, I observed the like good effect on corn, both from ashes and from gypsum, on tough sward, and on cloddy land, as applied by my neighbors, in sundry instances.

I have often found ashes, both leached and unleached, to be very beneficial to grass on dry land, but not on wet. I have never found them useful on my garden.

From my experience and observation, I conclude that ashes is best applied on dry grass land, or on land newly ploughed up, or where shades have lately been taken off, or where grass turf or other vegetable substances remain undissolved: in each of which cases, there is contained in the soil food for plants, unprepared for vegetation. To effect, therefore, a speedy preparation, ashes is an important application.

Whether ashes do, in fact, prevent worms, or destroy them when corn is eaten by them, I have not been able to ascertain; though they have been often supposed so to do, when no evil of the kind has existed. I have often, when corn has appeared languid and yellow, as if eaten by worms, taken up whole hills and carefully examined both the roots and the earth, without discovering any signs of worms. In these cases, I have deemed the unpreparedness of the soil to be the only evil. Ashes is then a sure remedy. But if the land be well tilled, the weather be warm, and there be frequent showers, it will be well prepared, without ashes, by hilling time or sooner; but the corn will not recover the injury it has sustained for want of earlier preparation. Hence it follows, that ashes on ploughed land should be applied as soon as vegetation begins.

It is best to apply leached ashes as soon as corn is planted, while a team and cart may pass without injury to the hills. But whether unleached ashes can safely be applied before the corn is sprouted, is a question I am unable to solve.

The usual quantity of unleached ashes for a hill of corn is about a gill: but it is worthy of being observed, that where a greater or even a less quantity has been applied, the effect has been much the same. The effects of ashes and gypsum, so far as the application of the two has fallen within my notice, appear to be much the same.

TO MAKE HENS LAY PERPETUALLY.

From the Cultivator.

I never allow cocks to run with my hens, except when I want to raise chickens. Hens will lay eggs *perpetually*, if treated in the following manner. Keep no roosters [cocks]; give the hens *fresh meat*, chopped fine like sausage-meat, once a day, a very small portion, say half an ounce a day to each hen, during winter, or from the time insects disappear in the fall, till they appear again in the spring. Never allow any eggs to remain in the nest, for what is called *nest eggs*. When the roosters do not run with the hens, and no nest eggs are left in the nest, the hens will not cease laying after the production of twelve or fifteen eggs, as they always do when roosters and nest eggs are allowed; but continue laying perpetually. My hens always lay all winter, and each from seventy-five to one hundred eggs in succession. There being nothing to excite the animal passions, they never attempt to set. If the above plan were generally followed, eggs would be just as plenty in winter as in summer. The only reason why hens do not lay in winter as freely as in summer, is the want of *animal food*, which they get in summer in abundance in the form of *insects*. The reason they stop laying and go to setting, after laying a brood of eggs, is the continual excitement of the animal passions by the males. I have for several winters reduced my theory to practice, and proved its entire correctness. It must be observed, that the presence of the male is *not* necessary for the production of eggs, as they are formed whether the male be present or not. Of course such eggs will not produce chickens. When chickens are wanted, roosters must of course run with the hens. B.

From the Maine Cultivator.

GRAIN—PRACTICAL HINTS, &c.

Norridgewock, March 5, 1842.

Messrs. Editors—I am apprehensive that my communications will become tedious to many of your readers, on account of the minuteness of my details; but if those to whom they prove so, will reflect a moment, they will be convinced that writers on agriculture are apt to go into the opposite extreme, and only write on general principles or striking facts; taking it for granted that every one is already sufficiently acquainted with the minute details, which is far from being true. Few of your readers but can recollect some simple labor-saving observation, in your useful paper, which has been of more value to them than one year's subscription. With these convictions I shall continue to speak of things no otherwise important, than having convenience and saving of labor to recommend them.

I object to mixing grass seed with grain, to save labor in sowing, as much of it would be covered too deep by the harrow and treading of horses or oxen. After sowing my wheat or other grains they are harrowed twice—grass seed sowed, and then rolled smooth. On sandy loam, half a peck of clover and the same of timothy or herdsgrass, is a good quantity. In clayey loams two quarts of clover and eight of herdsgrass is about right—varying the proportions according to the soils—in very wet and bog-land soils, the clover should be omitted and a half bushel of red top and a peck of herdsgrass sowed to the acre. As a general

thing we sow too little grass seed. The consequence is, a poor tilth is left naked, and the growth on a rich one is so rank as to lose much of its value. Some use a brush harrow to smooth their ground and cover grass seed. This may do on ground too wet to admit the roller, but is liable to drag the seed and leave it uneven. I would always sow chaff in preference to clear seed; but it requires observation and judgment; for a bushel of chaff, which will contain two pounds of seed one year, may not afford half that quantity another.

Every farmer ought to grow his own seed; it is always a cash article, and if he buys he has to pay for cleansing, which is useless, unless it contains foul seed. If leached ashes are used on wheat, they should be spread before cultivating: If unleached, they may be sowed any time before the plants are four inches high. Were it not for pressing the earth around the seed, I should prefer not to roll my grain of any kind, till it was three or four inches high. It will then destroy myriads of insects, and cause the grain to branch more.

If this mode will not break the eggs of the Hessian fly, I know no means of doing it. All that has been said or written on sowing quick lime, ashes, or impregnating fields with the fumes of tobacco, sulphur, or *essences of pole-cat*, to destroy the fly, in July or any other month, has never destroyed enough of them to pay a man for a week's work. Some wise man in our state, has advised to *starve them out* of the country by ceasing to sow. I should not like to see it tried, as I fear the experimenters would starve first. Although women and children are not employed here as in Europe, to weed and glean grain fields, and field labor is expensive, still I am satisfied from personal observation, that many fields of wheat will well reward an outlay of one to three, or even four days expended in weeding an acre. By thorough weeding once, the Canada thistle may be prevented from going to seed before harvest. Every farmer should have a pair or more of weeding tongs. They may be made of wood, exactly in the shape of a pair of blacksmith's tongs,—the handle about four feet long, and spread so as to permit the operator to stand between them. Mine have the jaws and joint made of iron, with teeth on the inside, a turned hoe-handle screwed on each shank, like a goose neck hoe. I have also a sharp gouge, one and one fourth inch wide, handle four feet long: with these an immense number of weeds can be destroyed in a day.

The advantages of early cutting are so numerous that I must dwell a little on them. As soon as the upper part of the stock is turned yellow and the kernel is fairly in the *paste state*, put in the cradle the first fair day--I say the *cradle*, for before the grain is crippled by long standing, this useful instrument *can* be used. If you neglect to cut then, you may have rains, and winds to ripen, break down and shell out the grain—if rusty, the quality grows poorer—you must cut with a sickle —the straw is too brittle for bands—you can only handle it when the dew is on, &c.

Unless you feel able to purchase the little machine, with fingers pushed before a pair of little wheels, for taking up cradled grain, which is a great saver of time and back-ache, you may follow the cradle with a rake made as follows: head 2 ft. long, $1\frac{1}{2}$ inch square, 6 teeth half inch in diameter, 10 inches clear of head--handle seven feet long—a dry fir is the right shape and light—on the back of head and handle, instead of bows, nail a triangular piece of half inch board, with which to even the butts of the grain. If your grain is good, you may stand in your place and gather a sheaf. Those who understand it, can make five bands sooner than I could describe the process. By the way, I know men who can make a band and bind a sheaf quicker than others can do the former. There is a *cleverness* in handling grain, which few men have arrived at in this section. I have had men in my employ who could not average half an acre in a day.

It is safest to stook the same day you cut. I prefer twenty bundles to a stook, on account of the power to stand against the wind. It is made as follows: Set up four pairs and one at each end: one pair and one, on each side of the centre;—place four cap-sheaves on each of these points, and fasten together in the usual way.

Cradled grain is much less liable to hurt in the stook or barn, than that which is reaped, on account of its looseness. Much grain is injured by mowing down too soon. In fact it would be better never to put it in close mows. I saw a grain barn at Guilford, owned by Hon. Joseph Kelsey, in which he had one scaffolding above another, so that the wheat all stood on the butts. It could not hurt in this way. I cannot doubt the flour would be much sweeter preserved in this way.

As to the mode of thrashing grain, it has come to be more expensive than before any horse power machine was in operation. It is my deliberate opinion that the man who has grain enough to make it an object to feed cattle on it, will save time and money by using the flail in preference to any machine; unless he can have one in his barn to use as he pleases. Few farmers will afford this. The time lost in tumbling straw out doors and pitching it back again, with the hazard of injury from stones are serious evils, all of which are avoided by thrashing and feeding from the floor.

Of barley and oats next time. Yours, &c.

JAMES BATES.

PROTECTION OF CORN AGAINST CROWS.

From the American Farmer.

Mr. O. M. Whipple, of Lowell, Mass., says, in his statement to the Agricultural Commissioner of Massachusetts, that for 15 years he has preserved his corn from the depredations of crows, by sowing on his field a quart of corn soaked in a strong solution of saltpetre. We can believe this, as no crow which might have eaten half a dozen grains of corn well saturated with saltpetre, would live long enough to bequeath his estate to his interesting progeny, though a scrivener were at hand, at the time of his making his meal, to draw his will. Saltpetre judiciously used, possesses medicinal virtues, but when taken in excess, is destructive of life, and hence the protection it affords to seed corn soaked in a solution of it, against worms as well as crows.

The best *scare-crows* we have ever used were bright sheets of *tin* suspended from poles, by wires; the poles of sufficient height, and in sufficient numbers, to be seen all over the field. Four

or six, if judiciously placed, will effectually answer for a field of 50 acres. Our mode of fixing them was this; we cut a pole of sufficient height, trimmed off all the limbs but the upper one; to the end of this limb, we attached, by a strong flexible wire, a sheet of tin, and planted the pole thus provided firmly in the ground on the distined spot. The limb left at the top, should project horizontally far enough to allow full play to the tin. Thus attached, the slightest breeze gives motion to the tin, and consequently causes a reflection, so sudden as to effectually frighten off crows, or other birds addicted to picking up the corn. Three years successful use of such *scare-crows*, justify us in recommending them to our brethren.

From the Kentucky Farmer.

FORCING FRUIT TREES TO BEAR.

Greenup Co., Ky., March 3, 1842.

Dear sir—Having addressed you an epistle a fortnight ago, I did not at that time intend to write you again until I saw your comments upon the project proposed in that letter, but being under the conviction that I could not write too much for the good honest-hearted yeomanry of the land, provided I keep in the limits of valuable information, I have, by the idea of facilitating the labor of the producing man in some measure, been prompted to address you at this time, the main object of which is to apprise the agricultural community of a novel mode of raising apples. I do not wish to be understood that it is novel with all, for it has been practised in Europe for many years, by the farmers in Germany in particular, who probably are the inventors; but I mean that it is novel to me, and if not to all, in my knowledge is at least not practised by them. The steps to be taken by the farmer to force his fruit tree to bear, as it is termed, are of a very simple nature and can necessarily be executed by any person who turns his hand to it without the aid of a practical operator, further than a description of the process. I hope, therefore, that my agricultural friends will not deem the description which I am about to give of the process to force trees to bear unnecessarily minute. With a sharp knife (the blade of a penknife is the best) make a cut in the bark of the branch which is meant to be forced to bear, and not more than eight or nine inches from the place where it is connected with the stem, or if it is a small branch or shoot, near where it is joined to the large bough, (three inches or less,) the cut is to go round the branch, or to encircle it, and penetrate to the wood. Care must be taken not to cut the wood, which would necessarily cause detriment to the branch or shoot operated upon. A quarter of an inch or nearly from the first cut make a second in the same way round the branch or shoot, so that both encircling the branch or shoot, a ring is formed thereon a quarter of an inch broad between the two cuts. The bark between these two cuts is now taken clean away with the small blade of a penknife, down to the wood, removing even the fine inner bark, which immediately lies upon the wood, so that no connexion whatever remains between the two parts of the bark, but the bare and naked wood appears white and smooth; but this bark ring, to compel the tree to bear, must be made at the time when the buds are strongly swelling, just before breaking out into blossom. In the same year of this operation a callus is formed at the edges of the ring on both sides, and the connexion of the bark that had been interrupted is restored again without any detriment to the tree or branch operated upon, in which the artificial wound soon again grows over. By this simple (though artificial) means of forcing every fruit tree with a certainty to bear, the most important advantage will be obtained by those who watch the time nature is ripe for it. Three years ago (the time when I was first informed of this singular way of forcing trees to bear,) I made an experiment on an apple tree. Being somewhat cautious of humbuggery I confined the experiment to one branch of the tree, which was about a fourth part of the whole top of it. I did not notice it until May. I had partially forgotten it, as I had but little faith in its having any effect toward making the tree bear, and called by rather to see if the limb which I had cut was not dead than to observe any thing else; but to my astonishment I found the limb which I had expected to find dead in a vigorous state of life, with as much young fruit on it, apparently, as all the rest of the tree. On examining the young fruit, I found that on the branch which I had cut to be sound and firm, while that on the other parts of the tree were dwindled and very much decreased. I expected at first that it was owing to the cut which I had made on the branch, but I satisfied myself by examining other trees which I found to be in the same way, and which I found shortly afterwards to be falling off. In September, when I gathered the apples, I found that the branch of the tree which I had made the experiment on, had five bushels on it, and the rest of the tree had not above one bushel on it, and that was inferior fruit. I would therefore recommend that farmers who have orchards would try the experiment. It would be well for them to be particular in the operation at first for fear of damaging the tree.

WILLIAM R. THOMPSON.

AN ESSAY ON THE BEST SYSTEM OF ROTATION OF CROPS, (HOGS,) PORK BEING THE CHIEF SURPLUS OF THE FARM.

From the Kentucky Farmer.

The first rotation on a pork farm is corn, rye fed down to hogs, clover (seed sown on rye) two years. This rotation will improve the ground very fast.

In consequence of the probable injury that would be likely to be done to the corn crop by the worms, when following clover, that crop should be broken up in the fall or winter season, the sod being turned over in the fall of the second year the frost of winter will effectually destroy the cut worms.

The advantages of this rotation will be to furnish a succession of food suitable for the hogs, at the same time enriching the soil.

Without a proper supply of corn the raising of pork would be a poor business in Kentucky; and a proper supply of corn cannot be easily raised

except upon fertile land; and the fertility of the land cannot be kept up without making a proper return to the soil for the corn taken off. All this will be done by this rotation.

The corn in this rotation is the only exhausting crop. This exhaustion is more than supplied by the fertilizing properties of the rye and the clover. All that is produced of both rye and clover is returned to the ground, except so much as is retained by the hogs to make flesh and fat, and this waste is more than replaced by supplies drawn from the atmosphere.

The corn supplies food to finish fattening, and a part of this may be fed in the field where it grew, thus adding to the fertility of the soil. Where the corn is thus fed, rye may be sown in the field a few days before the hogs are taken out; and they in gathering corn will put the rye well into the ground. But I prefer ploughing it in, after the hogs are taken out of the field.

If the ground should break up cloddy the roller and the harrow should be both used; but if there should not be many clods the harrow alone will be sufficient to level the field. The importance of a level surface will be seen when the ground is in clover, and when it comes to be ploughed the next time.

The rye will afford the hogs early spring grazing and push them forward very fast with the addition of a little corn. This early spring grazing is very beneficial to hogs, besides being a great saving of more costly food. The rye will keep them until one of the clover fields is ready to receive them, which may be about the 20th of April. After they are put into the clover, if the weather should be cold, so that there will probably be frost, it would be well to take the hogs out of the clover field, and keep them out, until the frost is off the next morning. Frost does not hurt clover that is not disturbed at this time of year; but every branch and leaf that is touched whilst the frost is on it, dies down to the place where it was injured. In this way I once had ten acres of clover nearly destroyed one morning, by one hundred hogs passing through and feeding on it, whilst frozen. My other clover lots were not at all injured by the frost as they had no stock upon them that morning.

The clover will afford the hogs good grazing until the rye is ready for them, which will be about the first of July. When the hogs are first put into the rye, some should be cut and got out and put in the paths which are made by the hogs, that the young ones may learn to eat it, which they do not always learn readily, unless they are put in the way of knowing what it is.

Now when the hogs are taken off; one of the clover fields may be saved for seed. The rye will last the hogs, (if there is enough of it,) until corn is sufficiently advanced to commence feeding them with the new crop. And this is one of the excellencies of rye, that it will keep in the field longer than any of your small grains. If there should not be enough rye, the hogs will go into the clover fields again, and now, they would pay well for having a little corn thrown to them every day.

The clover seed should be sown upon the rye about the 10th of April. A bushel should be put upon ten acres and as evenly distributed as possible. A box ten or twelve feet long, made of very light materials and having divisions every foot, with holes in each division, sows clover seed more evenly than it can well be done by hand. After the field has been once set in clover, the seed should be allowed to ripen the fall it is intended to plough it up; which will furnish a sufficiency of seed to keep up the rotation without sowing again. If seed in the chaff is used there should be a bushel per acre.

In this rotation two bushels of rye should be put to the acre. This quantity will supply more grazing than would be had from less seed, and will also afford a better crop, by supplying enough to make up for the roots that may be killed by the hogs rooting them out of the ground. Hogs root in grazing rye much less than would be expected.

Then the rotation upon the hog farm will be corn, rye, each one year; clover two years.

But even on this farm I shall recommend another rotation. The family will want flour, and wheat cannot be raised in a rotation with rye without considerable mixture with the rye. Then here the rotation should be wheat, corn, wheat, clover ploughed in the second year for wheat again. Upon these fields the manure from the stables may be hauled the year it is in corn, and the ashes and chip manure the year it is in clover. The spent ashes is a most excellent top dressing to clover. Or the spent ashes may be used as a top-dressing for the wheat crop, or applied to the growing corn crop.

When the fertility of the soil is sufficiently advanced; two crops of corn, two crops of rye and two years in clover, may be the rotation. And in very rich land the rotation for several years together may be corn and rye alone.

From many years trial of this rotation of corn and rye, I cannot perceive that the soil has been at all injured in its productiveness. I have raised a crop of corn which was cut up in the usual way, and the field sowed in rye, which was eat down with hogs. This affords a large coat of straw to be ploughed under, and keeps the ground in a loose, mellow, rich condition. Moreover the corn crop in this rotation is easily worked.

Oats may be substituted for the rye in some of the fields in this rotation. The large Tartary or Poland oat when fed down to hogs leaves as much straw on the ground as rye. Oats bring hogs forward faster than rye, and afford more grain to the acre: these are advantages in favor of the oat. But the oat does not stand up as well as the rye, is soon injured when it falls, sprouts the first rain after it is on the ground and must therefore be fed off very shortly after it is ripe. If oats are raised in considerable quantities for hogs it would be best to cut and get out a large portion of the crop for them, and only allow the hogs to go into one of the fields that was not too large for them to eat up before it would spoil. Even where rye was the principal small grain raised, it would be advantageous to have one field of oats of such a size that it might be consumed when ripe without waste. Where oats has been raised, rye will grow well the next year, if the oats are ploughed under and allowed to come up before the rye is sowed. If the rye is sown on the top of the ground and ploughed under with the oats the first time of ploughing, so many of the oats will come up as to partially smother the rye and do it much injury.

In my trials clover has not succeeded well when sown with the large Poland oat, in consequence of the oat growing so thick as to smother the clover.

Barley from its productiveness and its agreeing well with hogs might be occasionally sown in one of the fields in place of rye.*

Hogs make much manure where they are fattened, and (if they are not fattened in a field) their manure should be hauled out to be applied to the corn crop.

It will be perceived that I have not included the very popular root crops in my rotation upon a farm where pork is the surplus; and I give the following reasons for rejecting them. They are too uncertain.

The turnip is the most uncertain of all our crops. So uncertain, that a good crop cannot be raised more than one year in four. The beet, carrot and parsnip have generally been tolerably certain crops, until last season, when the whole of them were destroyed by the blister fly and the grass-hopper. Even if they were certain they require too much labor at a season when it cannot be spared from the corn crop. Irish potatoes, though free from the last objection, is not from the first. The whole crops were destroyed by the blister fly, (cantharis vitata,) last year.

The only root that I would recommend for its productiveness, profit and certainty upon the pork farm, is the artichoke (helianthus tuberosum,) which is easily raised and very much relished by hogs. The apple orchard is a proper place for planting them. The hogs that are not intended for market may be kept upon them most of the winter; they afford abundance of food and the rooting of the hogs in the fall and winter would destroy many of those insects that are so injurious to an apple orchard.

In parts of the country where mast is plenty the artichoke would be very valuable to be used those years that the mast fails. Should the artichokes not be needed they receive no injury from being left in the ground, as they will continue to grow and increase, and may be saved until from the failure of the mast they may be wanted.

SAMUEL D. MARTIN.

THE FARM AND FARMING OF THE REV. J. H. TURNER—NO II.

For the Farmers' Register.

In a former communication, when treating of a sound economy, that most indispensable appendage to good management, in the hurry of writing, I omitted an illustration which I will now supply. I intended to state, that I keep no overseer. I once had one, but he, though a very honest and respectable man, gave me more trouble than all the negroes put together. I constantly had to do the very things which I paid him to do. It is a very rare thing that the hired man has any eyes except for his own interest. Accordingly, I had to see every thing, and tell the overseer about it, and direct him to do it; and this gave me more trouble than to do it myself.

These overseers, besides, are generally very expensive things. In addition to their wages, their families, if they have any, must be supported. An extra horse must be furnished for the man to ride, and an extra cook for the lady, and an extra cow for the family; and when these, together with the multitude of other nameless *extras*, are taken into the account, the aggregate becomes very formidable in the catalogue of expenses. Accordingly, it is no uncommon thing for the overseer to become rich much faster than the employer. Indeed I have several times known him to acquire a handsome fortune, when the employer lost one. On large estates, it may be necessary in some instances to have an overseer, but in ordinary cases, I do think it would be better to repose the necessary confidence in a faithful servant, and thus invest him with the authority and responsibility of a head man. On small farms there is no doubt on this subject.

Connected with this, I will, with the risk of "bringing an old house over my head," say, that the farmers' *wife* ought in ordinary cases to dispense with her housekeeper. Whilst her husband is his own manager in his proper department, she ought to make her influence felt in all the departments of her proper sphere. Instead therefore of paying another woman to carry her keys, to lock and unlock the meat house, to visit the kitchen or dairy, or to superintend the poultry establishment, she ought to do these things herself. Nor let any active healthy woman (and these are the very women for farmers' wives) feel that in undertaking these things she will encumber herself with over much serving. It is true that these duties, if faithfully performed, will make it necessary for her to stay pretty much at home; but then industry, connected with early rising, and especially a *tact* for business, will make the whole comparatively easy.

I once knew a woman who had a remarkably kind and affectionate husband, but he was an easy "good for nothing" sort of a creature—would sit in the house all day, kiss his wife and caress his children, but would do almost nothing in the way of business. This good man's affairs, as may be supposed, regularly became more and more disordered. His estate, which was at first an ample one, got into ruin, and a heavy debt added greatly to their difficulties. In this state of things, this good man, but bad manager, died. The affectionate widow was almost overwhelmed with sorrow. Here she was left with an estate in disorder, with a family dependent upon her for a support, and with a large debt for which she had to provide, and all this in the very midst of affliction and bad health. At length, when her grief had exhausted itself, she rallied her energies, and showed what she really was. A combination of circumstances now called her true character into action. She mounted her horse, and rode over her farm; the broken down fences

---

* Last year I sowed a small piece of millet, which produced at the rate of 60 bushels to the acre. I tried some hogs that were in a pen, and they readily ate the heads of it. If this article should succeed equal to my expectations, it will be a valuable article in our rotations upon the hog farm, taking the place of the rye and producing more than double the acreable product. Some, left in the field for the purpose, was found to stand up well and retain its seed in a sound state the whole summer and fall. It produced not only more grain but more straw than any of the small grains that we are using for hogs, and has the advantage that it can be gathered by hogs with less labor than any other grain that we raise for them.

were repaired, order was called out of confusion, and with the aid of a head man alone, the estate was, in a few years, completely relieved from its oppressive debt. This good lady, though now far advanced in life, enjoys better health and spirits than she did in her more youthful days, and all is to be ascribed to her enterprise and industry. Should these remarks meet the eye of this good old lady, I hope she will excuse them. I submit them, not to render her conspicuous, but simply to show what industry and good management, even in a delicate female, can effect.

As another matter of economy, I will mention, that in the various appendages and fixtures of my farm I made it a point, that whatever I got should be of the very best order, and that without regard to the original cost. As an instance of this, I will state, that the cheapest cow I ever owned, cost me when delivered $95. And in purchasing my fine hogs some time ago, I got some as low as $30, but among them, there was one for which I paid at least $120, and this is decidedly my cheapest hog.

And here I will take the liberty to remark, that farmers very often commit a capital blunder in this important thing. They often suppose that the cheapest things are those which cost the least money; whereas the cheapest are those which yield the greatest profit on the amount expended, and at the same time contribute most to our convenience and gratification. Perhaps there is no instance in which this mistake is more frequently and strikingly displayed than in the purchase of land. In this important matter, farmers seem often to lose the faculty of looking ahead, and fix their eye only on the present expenditure. The essential points, fertility, facilities for improvement, and convenience to a good and steady market, together with other things which make land really valuable, are all lost sight of, or are all merged in the sole consideration of a cheap purchase. A little good land in the neighborhood of a good market is worth more, in my opinion, than all the lands of the moon and of the seven stars put together.

My predecessor, as I have been informed, lived on my present farm as long as he could. My old friend, John Carter, has several times told me that his last crop of corn consisted of stalks not larger than his fingers, and he verily believes that it did not yield a peck to the acre. And as I have had occasion several times to make public mention of this gentleman, I will tell the reader who and what he is. Mr. Carter is a plain man, without education, and has sense enough to make no pretensions to it; is a man of close, constant and accurate observation, always experimenting, and would certainly long since have ruined himself, but that he deals in this dangerous article in a small way. In this way he has stored his mind with an exhaustless variety of facts, which his great kindness prompts him to communicate for the information of all. His sole fault is, that he is too prone to draw general conclusions from particular cases. But to return from this digression. My predecessor being thus starved out here, followed the great multitude to the west, where I doubt not he found better land, but I do doubt if he found more substantial means of improving his condition.

This land being thus abandoned, remained for a long time (a small part excepted) in what is called the old field state. Some of it, it is true, had strength enough to put up a sweetbrier, a persimmon, a young pine, or a cedar bush; but large portions of it were so destitute of cover, that the straggling cattle, in their wanderings, merely passed over it, without stopping to take more than a bite or two. In the mean time, I was busily looking out in the neighborhood of Richmond for a small farm, with the view of making it my own. I saw many, but for reasons which it is not necessary to detail, I could not or did not obtain them. At length my eye rested on this forlorn spot. It was in market, and notwithstanding the almost hopelessness of its aspect, I resolved on a purchase. In the midst of the many discouragements with which it was surrounded, there were however some redeeming circumstances, which went a great way towards reconciling me to it. Its position, for instance, was in that direction from the city in which improvement was making the most rapid progress. It was situated on a good and level road, so that access to it would at all times be easy. Its surface was neither so hilly as to subject it to washing, nor so level as to retain large quantities of stagnant waters. Besides, when I came to examine the land itself, it was not so desperate as its first appearance indicated. It is true that a considerable portion was low, lying along both sides of three branches which passed through it, nearly the whole of which was a cold, tenacious pipe clay. But the remainder, which was far the greater proportion, was a light silicious soil, firmly imbedded on a strong red clay foundation.

These then are the materials on which I commenced my operations. In the details, I have perhaps been too particular, but I thought it necessary to be thus minute, that the reader might have a distinct view of the whole subject. And now the absorbing question with me was, how I could most speedily, and at the same time economically, bring these desolate lands into a state of profitable cultivation. To plant or sow them in their present state was a folly of which even a tyro would not be guilty. In this emergency, I had almost no assistance except my own reflections, aided by the little experience I had acquired in my very early youth. At that time (15 years ago) Liebig had not written his 'Organic Chemistry,' in which he sets forth the great value of ammonia. I had never even heard or thought of humus, nor guano, nor poudrette, nor urate, nor bone dust, nor any other of the "*multum in parvo*" manures of which the books treat at the present day. If the editor's invaluable 'Essay on Calcareous Manures' was then in existence, I had not seen it. But in the midst of my want of information as to other and better means of improving lands, I was satisfied of the great and certain efficacy of rich putrescent manures. This was then my resource, and I availed myself of it with all the means in my power. In the beginning, as might naturally be supposed, I made many mistakes in the use of this article. For instance, I used it in the drill, when I ought to have applied it broadcast, and I immediately covered it with the plough, whereas I am now convinced that I ought to have left it on the surface. But amidst my blunders, I conceived the idea of making all the manure I could at home, and then

of adding to it all in my power from town; and this I am sure was no mistake.

The reader is now in possession of the chief material by which I have brought my farm to its present fertility. The quantity used at first was about 50 cart loads of 25 bushels each to the acre. This materially improved the land, as the crops clearly indicated. But I could plainly perceive that there was an evident falling off in the second, and especially in the third and fourth crops. This made a second manuring necessary; and I am now convinced, that excessively poor lands, such as mine were, cannot be made permanently rich under *three* distinct manurings. These several applications ought to follow one another at intervals of about three years. I find that land managed in this way will regularly furnish a crop every year, and at the end of nine years, have so much fertility as greatly to aid itself, by the rich luxuriant vegetation with which it is clothed. Subsequent cropping will make additional manuring necessary, but then half the original quantity will be sufficient. Our small farms, brought to this fertility, and regularly treated in this manner, will furnish a crop, according to the season, *every year*, and so far from deteriorating, will constantly improve; and this I call the "*ne plus ultra*" of good farming.

But there is another article, which I have used to a considerable extent, and with most decided advantage in enriching my farm; and that is the coal ashes. It was observation, and observation alone, which induced me at first to resort to this substance for the above purpose. I had never seen nor heard of its being used for any other object than that of stopping a ravine or of making a foot path to cross the muddy streets of a city. But I had remarked the Jamestown weed and other rich vegetation growing in the most luxuriant manner, around the edges of heaps of this article deposited in gullies and other very poor places. Doctor Tazewell, also, from whom I made my first purchase, in sending for wood from his lot, had been in the habit of carrying out coal ashes and depositing them on the poor places. There also I had the most striking evidence of their fertilizing properties; for all around the edges of these little mounds the green-sward had formed a strong and close turf. With this evidence before my eyes, I could not resist the conviction, that this despised and neglected thing was a valuable manure. It also occurred to me, that my white livery lands were the very place to apply it. Accordingly after grubbing and otherwise preparing these low places, in which I had a deal of labor, I began to cart on the coal ashes. And here it is ludicrous to tell what a subject of ridicule I speedily became among my sapient neighbors. My carts were sometimes stopped, and the question seriously asked, "Can your master be in his senses, in carrying out that useless thing?" I however persevered, and the very next season I reaped as luxuriant a crop of grass, from this poor cold livery land, as I ever saw grow on the rich bottoms in the upper country. The tables are now completely turned, for I frequently detect my neighbors in committing the same folly, for which they heaped on me such a load of ridicule.

There is also another circumstance which highly recommends the coal ashes as a manure, and that is, that they are not only speedy, but *permanent* in their effects. How long they will last, and still manifest their efficacy, I cannot tell. I can point to places on my farm which were enriched by them ten years ago, and these places are rich still. Every time I plough I bring up portions of these ashes, and they appear as fresh as they were when first applied. Whether they have the faculty of fixing other manures in the soil, I cannot tell; but this I know, that they have the wonderful faculty of fixing themselves. From the fact of their exceedingly slow decomposition, one would suppose that they had but little, if any, efficacy. But when I see those places on which they have been deposited, closely covered with a strong turf, I must conclude that there is a powerful influence at work, though I cannot understand the mode of its operation.

Encouraged by my success on the cold livery lands, I determined to test the value of this article on the higher and lighter lands. And here the experiment was equally satisfactory. On a part of a field which I cultivated in corn I applied putrescent manures; on another part, lying along the side of it, I applied coal ashes. The season, especially the latter part of it, was rather a bad one for corn. About the time of earing, it was attacked with a drought, from which the crop suffered severely. But I could but notice the striking difference in the two portions of the field. Where the manure was applied the blades fired, and the product was indifferent; whereas, where the ashes was put, the corn maintained a vigorous green even to the lowest blade, and the crop was a heavy one.

But the chief value of this article is as a top-dressing on the grasses. Here its uniform action is as a charm. Last spring I had the pleasure of a visit from a highly valued friend from the upper country. This visit, as he said, was to the farm as well as to me. After passing over several fields, I conducted him to one which had been covered with ashes the preceding winter. And here he expressed his utter astonishment, declaring that he had never seen any thing to equal it, except under the strong influence of gypsum. I ought to observe, that this field had been seeded to timothy and herds-grass, but there was a considerable sprinkling of volunteer clover among it.

There is, however, one great drawback to the value of this article, and that is its great weight. When sobbed by the rains of winter, (and most of it is in this condition,) 12 bushels is a good load for an ordinary team. Indeed my mules often suffer very much under their task of three loads per day to the distance of about three miles. Upon the whole, I am so thoroughly convinced of the enriching qualities of coal ashes, that could I find a bed of them on my farm, I should feel myself amply compensated for the want of the richest marl.

But the editor has thought proper to read me a short homily on my neglect of lime. On this I have a word or two to say. And, first, I thank him for his remarks. I receive them in the spirit of kindness, for this I know is the spirit in which they were made. But let us inquire wherein consists the great value of lime as a manure? And here perhaps I may advance some things which will deprive me of the good opinion which it seems that Dr. Dupuy and others have formed of

my mode of farming. If this be the case, I shall sincerely regret it, but shall, notwithstanding, proceed in my own simple but candid way.

No one, then, as far as I am informed, pretends that lime is an *enricher*, or that it has one single enriching quality. The early opinion was that it acted as a stimulus, strongly exciting a plant to seek for all the food that might be in its reach. But this opinion is now, I believe, pretty generally exploded; and the more modern phrase is, that it is chiefly useful in *fixing* the manures in the soil, and thus rendering them permanent. This, if I understand him aright, is the idea which the editor intends to convey in his note. Now in this I do most cordially and fully agree with him, and I do contend that my practice has been uniformly in accordance with the same. The editor, and all the advocates for lime, will admit that manure or vegetation of some kind is necessary as a *preparatory application.* No one, at the present day, will think of applying lime to a naked soil. But the first effort is to charge the soil with vegetation, and then the lime will have something to act upon. Now I have been doing this very thing ever since I became a farmer. My land, as I before stated, was perfectly naked. It would not do to resort to lime, whilst it was in that state. It needed manure, it needed a cover, it now has both; and now, and not till now, was it in a state to receive lime.

But it seems that manure will not be permanent unless it has been *fixed* by lime. This, I confess, I do not thoroughly understand. My idea is, that the manures fix themselves. The reason why they are not permanent, is because there is a deficiency in the supply. Make the supply ample, and I will guaranty that they will be permanent. In accordance with this, we see that in cases of great fertility the crop is uniformly a large one. Now let this crop fall and rot on the land, and thus keep up the necessary supply, and the consequence will be, that fertility will not only be permanent, but will actually increase. In forests, therefore, where the whole product is deposited, and nothing is taken off, the lands are in a state of continual progressive improvement, and that too without a particle of lime to fix the manure.

But it will be said that, according to this, the purposes of cultivation will be defeated; that the object of tillage is not merely to keep up fertility, but to obtain supplies for the other necessary purposes of life. This is all granted, and at the same time I maintain that, where the products are regularly removed from the land, depreciation will necessarily ensue, unless other vegetation is furnished to supply the deficiency. Lime alone, without other enriching substances for it to act upon, will not answer the purpose. "The one thing needful," then, is not lime, but enriching vegetation, to make fertility permanent. I will now inform the editor that, some time ago, I did use lime to some extent. My first experiment was with burnt oyster shells, and on a piece of land which had been recently cleared. Here the effects were evident and highly satisfactory. About this time I got hold of the editor's invaluable Essay on Calcareous Manures. Other shorter productions, also, setting forth the great value of lime as a manure, were constantly coming under my notice; from all which I concluded that this was indeed "the one thing needful" as an improver of the soil. A. Robinson, esq., my next neighbor, had also taken up the same opinion. Accordingly we both procured lime, and without regard to any previous preparation, made our applications with the most confident expectations of success. But mortifying to tell, our efforts were without any beneficial effect whatever. We had expended our money and labor, both to a considerable extent, and our only reward was mortification and disappointment.

In connexion with the above views, and going a great way towards confirming them, I will state that I lately made a visit to Mr. F. Staples, who is one of my most industrious and enterprising neighbors. I found him, just where I like to see every young and healthy farmer, in the midst of his negroes, not sitting on a stump, indulging his own indolence whilst taxing their exertions, but actually holding the handles of the plough and taking his full part in the labors of the day. Whilst there, besides several piles of manure which were deposited in his field at convenient points for his crop, I observed a considerable quantity of oyster shells, some already burnt, and others in a situation ready to undergo that necessary operation. I ought to inform the reader that, for two years or more, Mr. Staples has been in the habit of making considerable use of this article on his farm. And here I could not but be struck with the remarkable coincidence, that without any previous observation leading to the remark, this judicious manager, pointing to the lime did say, "I have been greatly disappointed in that article." Having been disappointed myself in the same manner, I was at no loss to explain the cause of his failure. It was simply because his land was not prepared for it. It needed the great prerequisite, *manure;* and all doses of lime administered in this state, instead of curing the patient, did but aggravate the malady. Here then is a distinction which I think of paramount importance, and I hereby give it all the prominence of which I am capable. By not attending to this distinction, I am fully convinced that much mischief has been done, and the only way to counteract the evil is to arrest it at once. How much my neighbors and others may have suffered in this way I cannot tell, but in my own case I am confident that $100 would not cover the loss. The editor, therefore, and all others who are so earnest about *fixing* manures with lime, will see to it, that the manures are in the land *before* they attempt to fix them.

But it will be objected, that according to my own account of the matter, one experiment in the use of lime was a successful one. To this I reply, that this only confirms the position taken above. It will be recollected that this experiment was on land newly cleared. Here there were many small roots and other litter for the lime to act on, without which, I hesitate not to say, there would have been the same disappointment as in the other cases.

And here perhaps I ought to conclude, but still I am unwilling to stop, fearing that I may not have been fully understood, and thus may draw upon myself the animadversions of others for sentiments which I do not entertain. I do therefore candidly state, that whilst I regard lime under some circumstances as a most valuable article, I do at the same time consider it a most

dangerous one, especially in the hands of the inexperienced. We now know that it is a most *caustic* thing, but we did not know it till we had first burnt our fingers with it. And as no one is disposed to blame himself, but if possible to fix it on others, we are disposed to give a portion of the blame to the editor, who, by representing it "as the one thing needful," has unintentionally induced some of us tyroes to inflict this injury on ourselves. In my next, (unless I have to defend myself from the attacks of others,) I shall detail my course of cropping.* J. H. TURNER.

THE FARM AND FARMING OF THE REV. J. H. TURNER—NO III.

For the Farmers' Register.

In the last number I promised to detail in this my course of cropping. But I must beg for quarters a little longer, whilst I take another slight excursion on my favorite pony, *economy*. And at the sight of the word *economy*, the reader will probably exclaim, "Monsieur Tonson come again!" But with the risk of this, I must say that a well regulated economy is one chief branch of agriculture, so much so that no treatise on the latter can be considered as any way complete, without an important bearing on the former.

I would then state, that in the several purchases of my land, negroes, stock and other things connected with the fixtures of the farm, I made it a rule to carry out the principles of Jack Randolph's "philosopher's stone—pay as you go." To this rule, I rigidly adhered, until I conceived the idea of building the house in which I now reside. Up to this time, I had boarded and lodged in town, but I spent every day at the farm. By this time, I had become so interested in the farm, in its improvements, crops, stock, &c., that to spend the whole day there did not satisfy me. I wished also to spend the night there, and to have my family with me. The air, the water, the scenery and the whole routine of employment were so much more congenial to my taste' than those of the town, that I longed to have my family at the farm, that we might fully enjoy our country employments. This made a house necessary. But here was the difficulty: I had by this time so exhausted my little fund, in purchases and various improvements, that I had almost none left for the proposed building. In this state of things, I had concluded to postpone the comfort of a house, until I could command the means to build one. But a kind friend, learning my wishes in this matter, generously offered to furnish the necessary funds. Build, said he, such a house as you choose, and draw on me for the cost, and pay me when convenient to yourself." Now here was a kind offer, which almost any one would have felt himself warranted in accepting. I *did* accept it, but in doing so, I involved myself in difficulty in several particulars.

Hitherto I had dug all my money from the ground, and every dollar came to me moistened with the sweat of my face. But now money came to me in large sums, and it came so very *easy*, that I was tempted to build a much larger and a much more expensive house than a plain farmer's family, such as mine was, had any need of. I invested therefore in a house a considerable sum, which it would have been far more to my interest to lay out in enriching my lands, and in other more profitable improvements. I now have a comfortable house, it is true, but I have it at the expense of a considerable unproductive capital, and this is by no means a comfortable reflection. In the mean time, after the bargain was concluded, and such progress made that it would not do to abandon the undertaking, my friend died, and I was left to make such other provision as I could.

Nor is this the only evil growing out of this mistake. I constantly felt myself fettered and hampered in all my operations. A debt to a considerable amount had been contracted, and during its pendency, I felt it my duty, (not to suspend payment as the banks have done, but) to suspend all the improvements, and indeed all other expenses, which were not absolutely necessary. But I record the fact with gratitude, that this harassing debt is now paid off, and that I "owe no man any thing but to love him." Hereafter it is my purpose to cling to Roanoke's philosopher's stone, with a tenacity which nothing but death can sever.

Perhaps I ought to apologize for this long and minute detail. I can truly say that, in making it, I have no selfish end in view. I hold myself up, in this prominent manner, as a beacon of warning to other farmers. Debt is at all times an exceedingly inconvenient thing. It is a very easy thing for one who has credit to *contract* a debt, but it is exceedingly difficult to *pay* it. A countryman some time ago in Richmond asked a citizen, who happened to be deeply involved at bank, and felt all the pain and inconvenience of his situation, "Sir, will you have the goodness to show me the way into the bank?" Pointing out the way with his finger, he replied "That is the way, sir; but I can tell you, friend, it is much easier to find the way *in* than to find the way *out*." This good citizen was an honest but unfortunate man, and as such spoke feelingly on the subject. I too can speak feelingly; for I can truly say, that in

* We shall be gratified if Mr. Turner will state particularly the mode and circumstances of his application of lime. We have entire confidence in all his statements of facts, and of course, in the want of any manifest operation, and of profitable success of the application. Still, such a result as total failure, or loss, if of judiciously conducted liming, is altogether opposed to general experience; and in the absence of all knowledge of the details of the experiments, we must suspect that there either existed some peculiar obstacles to the operation of the lime—or that benefit really was produced, but so late, that it could not be distinguished separately from the greater effects of the subsequent heavy and repeated applications of putrescent manures. We shall be glad also to learn Mr. Robinson's opinions as to what he may suppose was the cause of his failure, and whether there is any ground for our supposition expressed above. We will submit some comments on Mr. Turner's general opinion on liming; but not until his own views have been fully presented, and completed.—ED. F. R.

all the debts I ever contracted, I found money plenty and cheap; but when I undertook to pay them off, I found it scarce and difficult to obtain: *paying* a debt is always up-hill work; it is a hard row to weed, try it who will.

I will now go further and say that, as a general rule, no farmer ought ever to letter himself with debt. No man has a right to make a slave of himself, and this every man does who contracts an unnecessary debt. Hence it is that the present is a time of peculiar distress. Go where I may, I meet with long faces, and hear complaints of hard times. And who is it that is in such distress? It is the debtor, and the debtor alone. Where there is no debt to weigh him down the farmer is in comfortable circumstances. His crops for several years in succession have been good, and the prices obtained remunerating. Merchants tell me, that such is the nature of their business that they cannot avoid debt. It may be so; but then they, in common with others, cannot avoid another thing, the thousand vexatious shifts and contrivances, called "*raising the wind*," to which they constantly resort to pay them off.

And now I hope that it will not be considered as an improper departure from my present undertaking, if I arraign and expose some of the intolerable evils under which we farmers are now laboring. And this I do not as a whig or democrat, but I do it over my own proper signature, as an oppressed and aggrieved tax-payer. If any responsibility be incurred, I hereby exonerate the editor and every body else, and take it upon myself alone. At the same time I believe there is independence enough in the press of the Farmers' Register, to incur every responsibility where the honor of Virginia is concerned. And here, without intending to flatter the editor, (I would not insult a high-minded man with a thing so fulsome,) I must say that Mr. Ruffin has received a very unworthy return for the valuable services he has rendered to his country. This then is the first charge that I make, that the farmers, yes, I am sorry to say, the *farmers* have not appreciated the services of the editor as they ought to have done. He saw and felt a great and sore evil inflicted upon the community by the banks, and he had the firmness and independence to arraign it; and because he made use of a farmer's work to tell the farmers their grievances, patronage, I am told, to a small amount, has been withdrawn from him. Now I am no apologist of the editor, nor have I his permission to say one word about his affairs; yet I must in justice to him say, that though he values not the loss of a few subscribers, yet he must feel the disgust and mortification which belong to every high-minded and independent man.* But I have other charges to make to which I proceed forthwith. My next charge then is that the banks have suspended the payment of *their* debts, when they will not allow me to suspend the payment of *mine*. I hold, for instance, a note of the bank, in which they promise to pay me a certain sum. I present it for payment. The reply is, perhaps in an insulting manner, "we have suspended and therefore do not pay our notes." Now suppose this same bank holds one of *my* notes, and on presentment, I tell them that *I* have suspended, not from whim, as in their case, (for they tell us all the time that they are *able* to pay,) but from actual *necessity*. Oh! say they, if that be the case, we shall soon try what stuff you are made of. The next thing is that formidable affair called a protest, the operation of which is to destroy my credit, and thus disgrace me. Nor does the thing end here, but if I have a horse or negro, or even a cow to give milk for my children to eat, the whole goes to pay the uttermost farthing.

I charge further that, in consequence of this suspension of payments, money, or rather bank notes, are made of unequal value, so that if I get a draft on a *paying* bank, I lose my *bread* in the operation.

---

* Our much esteemed correspondent is not mistaken as to the fact of the injurious operation of bank influence, through its bought tools and slaves, on this publication; but he is greatly mistaken if he supposes that the amount of injury from that source, malignant as it may be, would alone be of much detriment. If *that alone* were all that opposed the success of the Farmers' Register, the editor might well disregard all effects of such influence of swindling banks and the fraudulent banking system of Virginia, as much as he despises all the hatred and malice of the individuals who are either so base or so duped as to be thus directed by bank rule and influence. The great and unceasing and all-important obstacle to the proper maintenance, and consequent full measure of utility of the Farmers' Register, is the general apathy and want of all public spirit, and *even of enlightened self-interest*, by the agricultural community of this state. The proportion of the agricultural class of Virginia is amazingly small, who participate in the generous feelings expressed above by one who merely feels and thinks as every member of that class should do, and would do, if true to their own and their country's best interests. The pecuniary support afforded to this publication has never been enough to compensate the editor for the risks and losses necessarily incurred; and for the last few years, there has not been enough of clear profit to pay for a capable clerk. Nearly half the actual support of subscribers is furnished from beyond the borders of Virginia—and the arrears of subscription now due, and of which the payment is desperate, amount to more than all the clear profit ever derived from the adventure. Under such circumstances, the work has been continued less in regard to any hope of its being properly sustained, than for other considerations. But with the close of this volume will end the editor's labors for ten of the best years of his life; and he will no longer obtrude, on the agricultural public, services which seem to be so little appreciated, and which have been so little aided by the sympathy of the great body of the members of the interest designed to be served. In the mean time, his own labors and efforts will not relax; and he trusts that the tenth and concluding volume (under his direction) of the Farmers' Register will be not less valuable than the best of its predecessors.—Ed. F. R.

I charge again, that the legislature, instead of correcting these oppressions, has aided and abetted the same by making it lawful for the banks to commit them, and that this thing has been in operation so long, that it now amounts to an intolerable grievance. But I shall be told, compel the banks to pay, and the brokers will get all the specie and carry it off. To this I reply—let the brokers get it and carry it off. It will even in that event be put no further out of my reach than it now is. As to all practical purposes, the specie might just as well be in Guinea, or in the moon, as in the Virginia banks. In either event, it is where we farmers can get none of it.

I charge, further, that the legislature is ruining us by their immoderately long and expensive sessions. The last legislature was in session a hundred and ten days; the present a still longer time. Now let it be borne in mind, that every day thus spent costs us tax payers, including all expenses, nearly or quite $1,000. We pay therefore, annually, for legislation, upwards of $100,000; and what do we get for it? It amounts to simply this. Our laws are regularly overhauled, some are made and then amended, but finding that they are worse than before, they are *un*-made and then made over again; and this making, unmaking, and re-making, together with a great many long speeches, consumes a vast deal of time and money. Indeed, *speeches* are nearly the only palpable thing that they do make; and how much the speeches are worth every man will judge for himself.

I charge that this legislature is extremely tender of all expenses except their own. As an illustration, I state that a number of poor clerks have been docked 10 per cent. in their salaries, whilst the legislators did not dock themselves one single copper. It is true that a solemn farce to this effect was acted by the present legislature. But what was the issue? I am mortified as a Virginian, when I am obliged to say, that a great majority in both houses, when brought up to their fodder, started back from the rack.

I charge that a great portion of the clamor and noise made by the legislature, about retrenching expenses, is nothing but a solemn mockery. Some time ago, they spent a whole week in trying to make a senator, and after squandering away so much time and money, they adjourned, and no senator was made. This session, they spent three whole days, and of course $3,000, in making a governor, but the state is still without its governor. At another time, they did make a judge, whose salary is $2,500, but it cost our economical legislature three whole days of hard speaking and voting, and the state $3,000 to effect it. Now, if the legislature did really wish to retrench expenses, why deal in such small fry? Why seize upon poor clerk's wages, and make them still poorer? Why not reach forth a strong hand, and throttle the monster at once! Why not adjourn at the expiration of thirty days or less, pocket their money with a clear conscience, and go home to their wives and children, and mind their own business?

I charge, lastly, that this same body has lost nearly every feature of that primitive simplicity which once so nobly characterized a Virginia legislature. The time *was* when the legislature had its pious chaplain, and those great men, John Marshall, and James Madison, and Patrick Henry, and every other member of that day, were not ashamed to be seen upon their knees, humbly asking wisdom from the GOD of wisdom. When I see men thus engaged I can easily believe that they are in earnest. They meet in legislative assembly, not to exhibit themselves—not to carry any party point, but to do the business of their constituents, and then go home.

Now as we can expect no reformation in the banks until the legislature compels it, no more can we expect any reformation in the legislature until the people arise in their majesty and demand it. It is for this purpose, that I, an aggrieved sufferer, have performed the painful task of writing the above. Located as I am, near the legisture and the banks, I see a great many evils which fall not under the observation of the more distant farmers. I have waited so long, that my patience is now exhausted, for a more competent person to take this matter in hand. As no one has come forward, I have reluctantly resolved to apply the trumpet of alarm to my own lips. I have condescended to no personalities, I have sought no man's disgrace, I have sought for reformation, and reformation I will have. It is probable that I shall not stop here; but through our agricultural societies and agricultural papers, shall continue to sound the alarm until there go up one universal shout—*reformation! reformation!*

At the beginning of this paper, I begged for quarters whilst I took a *short* excursion on my favorite pony, economy; but the jade has proved herself of much better wind and bottom than I had any idea of. She even ran away with me. I have now come fairly to the end of my course; whether with safe bones remains yet to be seen. And now for the matter in hand.

In my course of cropping I aim at no wheat nor tobacco. My farm is too small for the former, and the latter I consider too troublesome to be remunerating. In attempting these crops I should moreover meet with competition from all the farmers within fifty miles or more of my market. In determining on a main crop, therefore, it has been an object with me, to fix on that one in which I could most nearly enjoy a monopoly. And as hay is a bulky article, compared with its weight and price, so much so that it will not bear transportation to any considerable distance, I have made that my chief crop. All my farming operations are therefore subservient to the cultivation of the grass crop.

In looking back to the time when I commenced farming, I think it a little remarkable that, without any previous experience to guide me, I should fix on the very crop which, upon trial for fifteen years, I am still convinced was the very best for me to cultivate. I had observed that but little hay was brought to market from the neighborhood, and that most of that little was of very inferior quality. Mr. Porter and others, who were then in the habit of keeping large numbers of horses for the stage and other purposes, depended almost entirely upon the north for their supplies of hay. This was a matter of necessity with them, for the country supplied perhaps not one twentieth part of what was needed. Observing this, I concluded that if I could succeed in raising hay of a good quality, I should have no difficulty in finding a market for it. Nor in this

have I been disappointed. I have never in any instance failed in disposing of my whole crop, and generally at fair remunerating prices. Even at this time, when every body is complaining of the scarcity of money, hay commands a more ready and a better price than almost any other article.

Some of my neighbors have expressed to me the apprehension that the market would soon be overstocked with this article, and that therefore the price must go down. I entertain no such apprehension. The first effect arising from the increased quantity at home will be to arrest the importation from abroad. At present there is still coming a considerable quantity from the north. As long as this is the case, I have no fear that *good* hay will be a drug upon my hands. Indeed, I am pleased to see that vigorous efforts are now making greatly to increase this crop; and I hope the time is just at hand, when, in addition to our neighborhood supplies, we shall see large quantities borne to market on our canal and rail-road. It is quite time that Virginia should assert her own proper independence. She has been dependent long enough, and far too long, upon the north for her hay, and upon the west for her pork.

But the main point remains yet to be touched: what is the *value* of this crop? I answer, that I know no crop which upon the whole requires less labor, is more certain, and at the same time yields a fairer compensation. The chinch bug and Hessian fly, which prey upon our corn and wheat, never touch this crop; nor is it subject to the depredations of any other destructive insect. Give it rich land, well prepared, and a moderate degree of moisture, and this is all that it asks. If, therefore, it be subject to fewer casualties, and when produced commands a fair and ready market, I must pronounce it a good crop. But besides these recommendations, there is another, which in my opinion greatly enhances its value, and that is that I regard it as less exhausting than most of our other crops. I pretend not that this, in common with all other crops that are removed from the land, is not an exhauster; but then it ought to be recollected, that other crops, such as corn, wheat, oats, &c., when removed, make no effort to recruit themselves. They leave the land, with the exception of a little stubble, entirely naked. This is not the case with the grasses; for besides the stubble, they begin immediately to renew themselves, and continue doing so until arrested by severe frosts; so that the aftermath, especially in clover, is often equal to the first crop. This second crop falling, as it does, and rotting on the ground, must contribute materially towards repairing the exhaustion of the first crop. And this, in my opinion, is the true reason why grass exhausts less than other crops. In this view of the subject, I am greatly strengthened by Liebig, and other celebrated writers on the subject of agriculture. They say, and I think with much plausibility, that the very best manure for any particular species of vegetation is that which is derived from itself. Leaves, for instance, is the best manure for forest trees, and wheat straw for growing wheat. If this be the case, then the second grass crop, containing as it does the materials of the first, must be a valuable manure for itself; and this, I think, is a strong argument for banishing cattle and all other depredators from our fields. But more of this hereafter.

As to my mode of cultivating grass, and the peculiar grasses which I prefer, there appeared in the last (February) number of the Farmers' Register, an essay on grass culture, which, were it not that it contains signs of evident haste, I should be disposed to adopt as my own. Indeed I will refer to it, as unfolding pretty fully my views and preferences on the subject. I think it therefore unnecessary to add another word on this point.

But besides grass, which I regard as my main crop, I also cultivate corn and oats, and of late I have turned my attention considerably to the beet and turnip crops. All these, however, are principally for home consumption. If I have any surplus, that of course goes with the grass to market. There is one exception to the latter remark, and that is the corn. I never sell, *directly*, an ear of corn; for by it I support another crop, which, till better advised, I must think a profitable one: I mean my hog crop. And here, without entering into the minutia of detail, I will merely state, that according to the best estimate I can form, the matter stands thus—when corn sells at 60 cents the bushel, and pork at $6 the 100 lbs. (which I consider as a fair average for both,) by turning the former into the latter, I get 90 cents the bushel for my corn. Of course when corn is dearer, or pork is cheaper, my profits are proportionably less. But at the usual average price, I consider myself as getting 50 per cent. more for my corn. I ought also to state, that in arriving at this result, I have to be studiously attentive to other circumstances, such as a thrifty breed of hogs, the care that is taken of them, and the constant economy of their feeding Now when any farmer can make up his mind to be *personally* attentive to these things, I hesitate not to say that he will find his hog crop yielding him a fair profit. It is true that the last season was a peculiarly discouraging one. I never knew pork so cheap, and the probability is that it will be many years before it is as cheap again. It is to be feared that many farmers who had engaged in raising pork will be induced to abandon it. This, let me tell them, is the direct mode to raise the article; so that when they are compelled to buy, they will have to pay heavily for it. For my own part, I am not at all discouraged. I have just effected the spring sale of my shoats and pigs, and the profit has been nearly or quite equal to any former occasion. For a fine young Berkshire boar, just eight months old, I received $55.

But I am again trespassing on the reader's patience. I must, however, before concluding, observe that my usual rotation (if I have any at all) is two consecutive years in corn, this followed with oats, and the three next years in grass. This of course takes up six years, and then commences the same routine again. I have no doubt that, at first sight, strong objections will be made to this course, especially as three grain crops are made immediately to succeed each other. But I beg the reader to suspend his condemnation, until I inform him that I have another rotation, and that is a rotation of *manuring*, and this I consider of more importance than any rotation of cropping whatever. On this hacknied subject of rotation I have a theory which is perhaps peculiar to myself, and which, when announced, will probably call forth the animadversions of some who are

wedded to their own favorite opinions. But fearless of this formidable consequence, I hereby inform the reader, that I shall still proceed in my own candid way, assuring him, that all I aim at is the *truth*. But as my paper is already a long one, and I have an increasingly strong objection to long communications as well as long speeches, I will defer till my next what I have further to say on this subject. J. H. TURNER.

ON GAYTING CLOVER.

From the London Farmers' Magazine.

Sir,—Properly securing the clover crop and other artificial grasses is a very important agricultural operation, particularly to those farmers who may reside in a humid climate. Observing what I consider very erroneous opinions abroad respecting the best method to be employed for its proper security, I would respectfully offer a few brief remarks on a short practice in this operation.

On leaving a clay land farm a few years ago, in an exposed and arid situation, where there was no difficulty in ordinarily favorable seasons in securing these crops in fair condition, and removing to a turnip soil, producing heavy crops of seeds, in a close situation and moist atmosphere, the seasons also being very wet and unfavorable, I had for the first three years a very great waste in this description of hay. The fourth year (1839) I had a beautiful crop of red clover, with a little rye-grass; and being again a very unfavorable season, I was determined to take every precaution to secure it without injury. I was advised to gayte or ruckle it (an operation which I will presently describe), as is sometimes practised by the best farmers in this neighborhood, and I believe in some parts of this riding of Yorkshire very generally. The work is performed chiefly by women, after the crop has been severed and laid a day or two to dry on the top: the operator beginning at that end of the swathe which was first cut, proceeds to roll it up by the hands till a sufficient sized sheaf is formed; then pulling from the top end a small band, which is tied round the top part of the sheaf so high as to admit the bottom part being spread out and firmly placed on the ground, in which direction it is left as perpendicular as may be, which concludes the operation. The gaytes should be placed in a straight line between the swathes, which gives it a neat appearance, a well as being placed on the driest ground. If possible, it is better done when the grass is dry on the top, but in precarious seasons I would not hesitate to put it together wet, as it will take far less harm in this way than being left on the ground. The mowers should lay the swathes as straight as possible, which greatly facilitates the operation.

The advantages attending this method are, first, it requires no more labor till it is fit to carry, except, perhaps, an occasional righting up, and at the time of carting a woman or boy to pitch it into heaps for loading, the rakers following; secondly, it effectually secures all the leaves and seeds, scarcely a particle being lost, as happens in wet seasons by repeatedly turning it; and thirdly, there is no season, however wet, in which it will not retain its quality; so much so, indeed, that in 1839 my seeds stood in gaytes for three weeks of almost incessant rain, yet they were at last secured so green and fine, it would have been difficult to say, when using them, they had been at all exposed. It is also the cheapest method, as a woman or strong lad will do an acre a day completely, even if the crop be large.

From the report of the Farmers' Magazine, the members of the Framlingham Farmers' Club will discuss this question again on the 24th May, and if any one of them will give this method only a partial trial, I think he will recommend it to his neighbors as worthy an extended practice, being the most economical, and securing both quality and quantity.

Should you deem these remarks worthy a place in the Farmers' Magazine, I should be obliged by their insertion. I am, Sir, your most obedient servant, ANTI-HAYCOCK.

Hall Garth Farm, Kildale, Jan. 26, 1842.

FURTHER CONTRIBUTIONS TO OUR RESOURCES IN MANURE. STERCORIZED BARK FOR NITROGEN AND PHOSPHATES.

From the Cornwall Royal Gazette.

Sir,—Independent of theoretical or chemical considerations, plain reasoning will indicate that the excrements of animals should return to the soil the refuse of their food; and consequently that as cattle dung is an excellent manure for grass, so night soil should be the most appropriate for corn. And the *fact* long known and acted upon by the Chinese and Belgians, is becoming more and more appreciated and employed in this country, though its value is yet imperfectly understood. It appears from Liebig, that the annual evacuations of one man (1½lb. per day liquid and solid—547lbs.) are sufficient manure for an acre of wheat, and that every pound of urine is equivalent to a pound of wheat, estimating the produce per acre at four quarters, (not too high for fair situations thus manured,) and the annual consumptions at one quarter per man (an over estimate): it results, that the excretions of one individual will supply manure for the consumption of four; so much of the nourishment of the corn is derived from the air. And hence some estimate may be formed of the great increase of produce to be obtained by due attention to the preservation of this article, now drained to waste in such profusion into rivers and the sea. And even in the modes of preserving and using it, by the aid of lime, much of its ammonia is wasted; and it has before been shown, that to the ammonia the corn owes its nitrogen, the element on which we have most to depend for improvement, both in quality and quantity. Lime should no more be mixed with night soil, than with gas liquor; on the contrary, the matters added to absorb the liquid, should have an acid tendency. Gypsum does very well by double decomposition. Peat earth is acidulous enough to fix the ammonia, where at hand; but in large towns, this earth often requires pretty distant carriage. Refuse bark is, however, generally produced in populous places, and is an incumbrance to the tanner, from which he is obliged to contrive various methods for relieving himself; amongst the rest burning, to the great annoyance and suffering of the neighborhood.

But tanners' refuse bark has also enough aciduloous quality to fix the ammonia in night soils; and being so generally at hand in populous towns may be employed for the purpose extensively.

Three parts of tanners' bark to one of night-soil (urine included, which is as valuable as any part) will make a stronger manure than stable-dung; and with this further advantage, that the stable-dung requires to be rotted, to reduce the long straws, and kill the undigested seeds it contains; whilst the bark being already short, and the night-soil containing no seeds, it may be carted to the field at once; thus saving the heavy waste in rotting.

In the tan-yard, the bark may be stercorized, by having a privy or two, and suitable corners for the work-people, all made to drain upon the heap; calculating say 1 lb. of evacuations liquid and solid from each individual, per day, and proportioning the bark to it; what is above that quantity being disposed of to other persons, for the same purpose. All the hide wool and glue washings and house drainings should run into the same, which should be roofed over, to keep off the rain, but with open sides to encourage evaporation of the moisture. All the ashes of fires, whether of the works or house, should be added, to help the absorption, and destroy the smell; and by this means a tanner employing 25 hands may turn out 25×3 bark, and say $\times 2$ for ashes and drains; $25 \times 75 \times 50 =$ 150lbs. of manure per day, richer than stable dung, much better for corn, and losing nothing in rotting as not required.

In other places, as private gardens, school grounds, &c., the bark may be procured from the tanner, and added to the privy sink, in rather larger proportions, reckoning the evacuations at $1\frac{1}{2}$lb. per entire day of 24 hours. Much less bark will do, say half as much as the night-soil, making up the quantity with garden mould; but the bark is so much additional vegetable matter, at little cost. It may be thrown in, a load at a time, for the excrement to fall upon; but the ashes should be added daily, so as to lie on the top, and absorb the smell. A long and large trunk should rise from the sink, to encourage evaporation and carry up also the smell still remaining; for although much subdued by ashes, it cannot be altogether destroyed without careful mixture not practicable for such a purpose. In this manner large quantities may be collected.

Peat earth will do instead of bark, as above stated, with the precaution not to throw it in in cohesive lumps, which will not absorb, but as dry and crumbly as practicable. The ashes are equally useful in either case.

J. PRIDEAUX.

From the Kentucky Farmer.

AN ESSAY ON THE IMPORTANCE AND PROPER MANNER OF REARING SHEEP, SUITED TO THE CONDITION OF KENTUCKY.

By Dr. Samuel D. Martin, Clarke county, Ky.

To prove the importance of the sheep, it is only necessary to state that all the men in the state are dressed in the productions of their wool half the year, and the preparation of this clothing gives employment to a large portion of the women several months every year. The amount of domestic manufactures in Clarke county alone, (which are principally of wool,) amount annually to $129,000. Beside their wool they furnish meat that is particularly wholesome and nutritious.

They are also very serviceable in clearing a farm of weeds and bushes, as they feed upon a greater variety of herbage than any other animal. Their manure is very valuable and is more evenly distributed by them over the ground they are fed upon than by any other stock, and has the advantage of having no seeds in it to fill the ground with noxious weeds.

It is believed there would be as great profits realized from sheep on our highest priced land as upon any other stock, and the land would be more rapidly brought into the highest possible state of fertility.

Upon such land I have found sheep to be subject to very few diseases, and very productive.

The males should be kept in separate lots until the middle of October, when one male should be admitted to every fifty females. This will bring the lambs from the middle of March to the first of April.

There should be ten acres of rye sowed for every hundred sheep, and the sheep should be turned upon this rye when their lambs are two or three weeks old, this will produce a plentiful supply of milk and enable the ewe to raise a strong and vigorous lamb. For want of something green for the ewes many lambs are lost. The lamb should be castrated at three or four weeks old, and it is also customary to shorten their tail to one or two inches.

At three months old the lambs should all be separated from the old sheep and kept in a lot by themselves. By weaning them at this age they learn to eat and become fat against the fall, and go through the next winter much better than those that are allowed to run all the season with their dams.

The grazing of the rye will also give the blue grass* a good start in the spring and upon this *good start* in the spring depends the value of the blue grass crop. A piece of blue grass that is allowed to show its seed stems before there is any stock turned upon it will produce twice as much pasturage as a like piece that has stock turned upon it as soon as they can get a little grass off it in the spring. The rye will last the sheep until the blue grass is ready to receive them, and after being upon the blue grass about a month they may be put upon the clover fields where they will find plentiful pasturage until the stubble fields are ready to receive them. These will afford them a plentiful supply of weeds and the different grasses for some time, when they may again be transferred to the clover fields. All this time we are keeping them as much off the blue grass pasture as possible. Now when the stubble fields and clover fields are exhausted the sheep should again be turned into one of the blue grass pastures, where they will find a great quantity of food collected for them which will last them through the winter.

Sheep are healthy and keep fat upon this blue

---

* Green-sward, Poa-pratensis.—ED. F. R.

grass and will want no feeding during the winter, unless there should come a heavy snow upon which a crust should be formed. If that should be the case they should have a regular supply of hay, fodder or oats until the snow is sufficiently broken to get at the grass again. By having several such blue grass pastures and transferring the sheep from one to another their health will be promoted and an abundant supply of winter food be obtained. If sheep are turned early in the spring upon a luxuriant clover lot, especially in wet weather, they are liable to be hoven, which frequently proves fatal. On which account it is best not to turn them upon the clover before the first of June, and even then they should not be turned upon it when very hungry. After the first of June if proper care is taken when the sheep are put into the clover fields there is very little danger of its hurting them.

All that has been said in relation to sheep upon our best lands is applicable to the lands of an inferior quality, still we should have to vary our treatment in some particulars. A large portion of the soil of Kentucky that will not produce *fine blue grass* will produce abundant crops of timothy and clover. We should here have to make some greater provisions for wintering the sheep. Upon some such land orchard grass (Dactylis glomerata) succeeds well; and this will also afford a tolerable winter supply of food and a very early spring supply. But here we must depend principally upon clover and timothy hay, corn stock fodder, oats, and such roots and vegetables as we can raise.

Among the roots I would enumerate the turnip, parsnip, carrot, sugar beet, mangel wurtzel, Irish potato and artichoke.

The turnip is an excellent root from its productivenes and adaptation to winter feeding of sheep, but is too uncertain a crop to be depended upon in this state. The parsnip is a much more certain crop and the improved varieties are very productive and are easily kept through the winter requiring no care nor protection from the cold. The carrot is also easily cultivated and productive. Some of the varieties require to be protected in the winter, others do not. Sugar beet is a tolerable certain crop and easily cultivated, so is the mangel wurtzel; they both require protection and are easily injured by frost.

The Irish potato is so well known that I need say nothing more about it.

The artichoke (*Helicanthus tuberosum*) is the most productive of all the roots that ever I have cultivated; all the stock that I have tried is fond of them; they require no care, staying in the ground from year to year without injury, and are easily cultivated. I plant them in drills four feet apart and two feet asunder in the drills, and work them as I would corn, being careful not to plough deep the last time of ploughing.

Among the vegetables for winter feeding of sheep, pumpkins and cabbages are both excellent. The pumpkins may be stored away for early use in a cellar or root house or even in a fodder stack. And cabbage may be kept all the winter in a fodder stack, or even in a barn slightly covered with shucks or straw.

But it is principally on our inferior and mountain lands that sheep husbandry will be found peculiarly advantageous.

There are in the bounds of Kentucky many thousands of acres of land that can be purchased at prices from five to twenty cents an acre. Some of these mountain lands are rich and all of them calculated to afford abundant pasturage of the most appropriate kind for sheep.

To make this land available, one or two acres should be fenced in and the timber inside and for some little way out all killed, the sheep should be brought up and penned in this every night. By penning five hundred or a thousand sheep in this way in this pen for a month the land will be made very rich, and a week before they are taken out the pen should be sowed with grass seed. I should prefer mixing timothy, blue grass, orchard grass and red clover seed for this purpose. While the sheep are occupying the first pen another should be prepared for their reception the next month. In this way a pen of one or two acres will be prepared and sown in grass every month. Means should be prepared also for wintering these sheep. There are glades in most of our mountain land that have green grass in them all the winter; there is also a large quantity of winter fern, which, with oats, should be raised for the purpose, which will assist in wintering and keeping the sheep healthy. With the assistance of a good shepherd's dog, one man can easily herd and attend to two thousand sheep. These mountain lands are covered in the spring and summer with a profusion of pea vine, which will afford ample provision for the sheep; and when it fails, if the seed is put there they will be covered with clover and other grasses.

There are still a few wolves in the mountains, but they are scarce and easily killed in the following manner. Procure an old horse and kill him on some unfrequented ridge (wolves generally travel on the ridges) and stick holes in his flesh all over his body and put two or three grains of strychnine in each hole. The horse should be killed in the beginning of winter, as he will not decay during cold weather, and the wolves are also scarce of food during winter.

The pens that have been sowed with grass will produce a fine crop of hay for the second year, and this added to a crop of oats raised for the purpose will afford the sheep sufficient food for the second winter. The roots and vegetables mentioned before may also be brought into requisition here; and in good weather the sheep will receive much benefit from being driven every day to the glady valley or to those places where winter fern is abundant. The fencing and penning, and sowing of grass seed should be continued through the second year, and after the second winter those pens will afford sufficient hay to winter the sheep with very little assistance from other sources.

The greatest enemy the sheep have is the dog. I was pleased with a law of some of the eastern states upon this subject. They have a tax upon dogs; and whenever sheep are killed by them, the loss is repaired from this fund.

The shelter for sheep in those mountainous regions is generally very extensive. From Miller's creek in Estill county, as far up the river as I have ever travelled, which has probably been fifty miles higher, it would be difficult to find a place where there was not in two or three miles shelter for many thousand sheep under projecting rocks, and in large open-mouthed caves, such as sheep would readily enter.

Sheep should have a regular supply of salt at all times. Where hay is cut for sheep (or any other stock) it should be salted, as it is much more convenient to give them salt in the winter in this way.

The kind of sheep raised must depend upon circumstances. Where the chief demand is for mutton, some of the larger kinds of sheep may be most valuable, as the Bakewell or Cotswold. This will be especially the case where pasturage is very abundant, for these large sheep require pastures. But where the object is chiefly wool, the Merino or a cross of the Merino and Saxony will be found most profitable. The larger sheep will do better in our rich level lands than in mountainous regions. It might have been supposed that a cross of the Southdown upon our Merino flocks would be very advantageous. And such a cross has been strongly recommended in Kentucky.

But this has not been the result, in the trials that have been made in England. It is said in the Complete Grazier, page 230, that the produce of this cross had "tender constitutions, slow feeding, bad shape, and deficiency in the number of lambs. This new breed has therefore been generally given up in Sussex, and also in Wiltshire, where it has been extensively tried." The wool of the Southdown was considerably improved.

The following account of the different breeds of England is taken from Judge Beatty's Prize Essay upon the Agriculture of Kentucky, published in the 4th vol. Ky. Farmer, page 300:

"England is quite as celebrated for her breeds of sheep as of cattle. They may be divided into the long and short woolled kinds. Of the former, the most noted are the following, and they stand in point of size in the order named:

1, Teeswater wethers, weighing per qr. at 2 years old,		30 lbs.
2, Lincoln,	"	25
3, Dartmoor or Bampton,	"	25
4, Cotswold,	"	24
5, New Leicester,	"	22
6, Romney Marsh,	"	22

"These bear fleeces from eight to eleven pounds in the yolk. The Lincolns bear the heaviest. The Teeswater, Cotswold and Dartmoor wethers average nine pounds each, and the New Leicester and Romney Marsh eight pounds. These breeds all bear very coarse wool, which forty years ago sold in England at 10*d*. sterling (20 cents.) Of the short woolled kinds of native sheep, the most noted are the Ryelands and Southdowns. Southdown wethers average at 2 years old, 18 lbs. per quarter; the Ryelands only 14 lbs. at 3½ years old. They are a small race of sheep, but bear finer fleeces than any of the native sheep of England. The Southdowns are the next finest. Their wool at the period above-mentioned was worth two shillings and four pence, sterling, (56 cents,) and their fleeces average about three pounds.

"The Teeswater are the largest sheep in England, and are prevalent "in the rich, fine, fertile, enclosed land on the banks of the Tees, in Yorkshire." They are supposed to have sprung from the Lincolns, being an improvement of that stock, as regards size, with little alteration to the quality of the wool. They are said to be a breed calculated for warm, rich pastures, where they are kept in small lots, in small enclosures, and supported with food in severe winter seasons."

"The Lincolns of the improved breed are said to be "among the best, if not *actually* the best long woolled sheep in England." The flavor of the Lincoln mutton is superior to that of the Dishley, and is a great favorite at Smithfield. Their wool is from ten to eighteen inches long, but very coarse, being only fit for combing.

"The New Leicester or Dishley (Bakewell) is an improved breed of sheep, which, according to Mr. Culley, "is readily distinguished from the other long woolled sorts, by having fine lively eyes, clean heads, without horns, straight, broad, flat backs, round or barrel shaped bodies, fine small bones, thin pelts, and a disposition to make fat at an early age." Mr. Culley adds his testimony in favor of the "superiority in the fineness of the grain and flavor of the mutton, to that of the other sheep of the *long woolled kind*." But upon this point other authors do not concur. The author of the 'Treatise upon Live Stock,' says the New Leicester mutton is the most fine *by grain* of all the large *long woolled* species, but of a flavor *bordering on the insipid*." Mr. Livingston, in his admirable Essay on Sheep, speaking of Mr. Bakewell's improvement of the Dishley stock, says, he was of opinion "that fat upon the rump and ribs was more important than tallow, and accordingly he produced sheep on which it is *there found* five or six inches thick. He further remarks that "his sheep are, on that account, less valuable to the epicure than to the laborer, with whom they, in some sort, supply the place of pork."

The wool of this sheep is the shortest and finest of *combing wools*, the length of the staple being six or seven inches."

The late Mr. Robert Bakewell originated this improved variety, and it is supposed the base of the improvement was a cross between the Lincolns and Ryelands, the latter giving fineness to the wool and grain of the mutton. This breed is admitted "to be the most perfectly formed, and consequently more disposed to fatten quickly, and to contain a much larger proportion of meat on an equal weight of bone." They are said also to be more disposed to fatten than other breeds *of the same size of carcass*; but are alleged to be objectionable because of their "fattening too much, and the mutton, in consequence, becoming less delicate in its flavor than other breeds that require a greater length of time in the process.

The Cotswold variety are also of the fine species of combing wool, and, like the New Leicesters, are said to have derived this feature from a cross with the Ryelands.

The Romney Marshes are a large breed, carrying wool suitable for combing, of rather a fine quality. They acquire their name from the marsh on which they are chiefly raised, and are said to be well adapted to be "fattened on the rich kinds of marsh pasture, and on those which extend from Hastings to Rye in Kent." The author of the "Synopsis of Husbandry" says that "a convincing proof of the great value of this breed of sheep, as well as of the land on which they are fed, is that six to eight wethers may be fattened per acre." This breed

would be a valuable variety, for the flat and marshy lands which prevail in many parts of the north-western states, and which are found in some places on the borders of the Ohio and other rivers of Kentucky.

The Dartmoor or Bampton variety are prevalent in the districts from which they derive their name, the length of their wool is about the same as of the Romney Marsh sort. These breeds have been improved by a cross with the New Leicesters, which it is said "will in some situations bring forward wethers at 20 months old weighing twenty pounds the quarter, with a shear of eight pounds of yolk wool to the fleece." The mutton is said to be of good quality. It should be remarked that in England all the *large breeds of sheep* are raised chiefly *for the mutton*, and that wool is only a *secondary* object. The following statement will give a pretty correct idea of the usual price of mutton in England:

Mr. Dawson, of Buthorp, in the year 1796, sold two hundred *two shear* wethers, (two and a half years old,) at three pounds sterling round. An average of his sales for the six preceding years was as follows: 1790, 35*s.*; 1791, 35*s.*; 1792, 43*s.*; 1793, 38*s.*; 1794, 44*s.*; 1795, 50*s.* These were New Leicesters, which had been twice sheared. If each shearing produced eight pounds, (a large allowance for young sheep,) the wool at 10*d.* would have yielded 13*s.* 4*d.* or 6*s.* 8*d.* per annum. But the average of the sales of each wether during the seven years was 43*s.* 7*d.* Thus the amount received for mutton was six and a half times as much, *annually*, as was received for wool. It will be perceived that the price of mutton gradually rose from 35*s.* to 60*s.* At the latter rate, the *mutton* produced, *annually*, nine times as much as the annual produce of wool. The contrast between the wool and mutton, of the larger breeds, such as the Teeswater, Lincoln, Bampton and Cotswold, would be still more remarkable. It should also be recollected that since the year 1796, all kinds of meat have risen, whilst coarse wool has remained about stationary, and consequently that, at this time, the disparity between the price of wool and mutton would be still greater than it was in the year 1796.

I desire that these circumstances may be borne in mind, when I come to treat of fine woolled sheep and of the sheep husbandry of Kentucky.

Of the various native breeds of *fine woolled sheep* in England, I propose to speak only of the Southdowns and Ryelands. The latter were formerly held in high repute, in consequence of their extreme fineness of wool, but since the introduction of the Spanish Merinoes, (1792,) which far excel the Ryelands in fineness of staple, they have, in some measure, lost their former high reputation. They are, however, considered an excellent stock on which to cross the Merino breed. The half blood from this cross produce a fleece, it is said, averaging five pounds in the yolk, and worth 3*s.* sterling, (72 cents.)

The Southdowns are next to the Ryelands, as regards fineness of wool. Mr. Culley describes this variety "as having no horns, gray faces and legs, fine bones, long small necks, and rather low before, high on the shoulders, and light in the fore quarters, sides good, loin tolerably broad, back bone rather high, thigh full, twist good, mutton fine in grain and well flavored, wool short, very close and fine, in the length of the staple from two to three inches, weight per quarter of wethers, at two years old, eighteen pounds." This breed prevails "on the dry chalky downs in Sussex, as well as in the hills of Surry and Kent." It is said to have been "much improved, recently, both in carcass and wool, being much enlarged forward." They are considered as an excellent sort for less fertile and hilly pastures, as feeding close." They are "hardy, and disposed to fatten quickly." They come quickly to maturity, the wethers "being seldom kept longer than two years old, and often fed at eighteen months." They are also "capable of travelling well and of resisting the effects of exposure to cold." The celebrated Mr. Coke, now Lord Leicester, is said to have the best and finest Southdowns in England."

I have extracted the above from Judge Beatty, but as the author from whom he quotes spoke of the Southdowns of his day, I thought it proper to give the opinions of some later writers upon these sheep, and shall then proceed with my quotation. At present Mr. Ellman of Glynd is "said to have the finest Southdowns in England." The following extract is taken from Blacklock's Treatise on Sheep, written in England in 1838 and republished in the United States in 1841. On page 20, American edition, he says:

"*The Southdown*, like the Ryeland, are, from the delicacy of their constitution, unadapted for bleak situations, but sufficiently hardy and active for a low country; their average weight is from 15 lbs. to 18 lbs. a quarter; that of the fleece, which is very short and fine, being from 2½ lbs. to 3 lbs. They are without horns, have gray faces and legs, a neck low set and small, and a breast neither wide nor deep; their mutton is fine in the grain and of excellent flavor, having been brought to great perfection by Mr. Ellman of Glynd, and other intelligent breeders. They are mostly found in Sussex, on dry chalky downs producing short fine herbage, and arrive early at maturity; in which respect they are equal to the Cheviot, though inferior to them in quantity of tallow. Formerly they would not take on fat until four years old; now they are always at market when about 2 years of age, and many are killed before that period."

From the above quotation it appears that the Southdown sheep of the present day have "delicate constitutions" and are not calculated for "bleak situations," but are well suited for a low country. Neither Southdown, Bakewell or New Leicester, nor Costwold would suit our mountain lands. The Merino, and their crosses upon our native sheep, would be found to suit our mountains best.

These Southdowns formerly were slow in coming to maturity, requiring four years; what means have been resorted to for producing their early maturity in the present race we are not informed. Whether it was the introduction of some foreign blood or judicious selection and breeding we know not.

It appears that, whatever the means may have been, the constitution has been so much injured that they are not *now* the same hardy sheep they were forty years ago.

A comparison of the mutton of the Southdown with the Merino, in the only case that has come to my knowledge, has resulted in favor of the Merino, and the Merino wool in England brings double the price of the Southdown. In the United States the difference in the price of the wool is not so great, the Merino being worth about forty or fifty per cent. most. The quantity of wool yielded by the Merino is also greater than the Southdown, whilst the quantity of mutton produced by the Southdown is greatest.

I have no practical experience of either Southdowns, New Leicester or Costwold, but believe the Merino, with their crosses upon our native sheep, will be found a hardier race than either of the foregoing, and whilst the relative prices continue any thing like they are at present, it will be much more profitable to invest money in them, than in either of the others.

I shall now resume my quotation from Judge Beatty.

An English writer, comparing the Southdowns and Norfolks (a very noted breed of the fine woolled sort) says "in short, the leading characteristics of the high and full bred Norfolk and Southdown sheep seem, upon comparison, to be chiefly these, the wool of both is found to be of the first clothing *quality*, but the larger *quantity* is produced by the Southdowns; the mutton of both is equally delicious. But the quiet, gentle Southdowns, in the pasture, must be opposed to the wild, impatient ramblings of the Norfolk, whose constant exercise not only excites continual appetite, but at the same time occasions a considerable waste in the pasture, by treading down and unnecessarily spoiling a great deal of food they do not eat."

It is further remarked, that "the hardiness of the Southdowns, enduring wet and cold lodging and a greater degree of abstinence and fatigue than the Norfolk, in the fold, is a superiority of much moment, and only to be equalled by another which they possess, in a very superior degree, which is that of doing well upon coarse and sour pastures." It is added "that the Southdowns, compared with the Norfolk, are equally good turnip sheep; and for every possible purpose, whether for their flesh, for their wool, for breeding, for folding or for the butcher, they demand a less supply of food and of an inferior quality to that which, in every situation, would appear indispensable to the well doing of the Norfolks."

The foregoing statements and facts present a very favorable view of the Southdown variety of sheep. But their merits are still more strongly sustained by a course of experiments, made by the Earl of Egremont to test the relative value of the New Leicester, Southdown, Romney Marsh, and some half bloods, being a cross of the New Leicester and Southdowns. It would occupy too much space to give the whole course of his experiments in detail, but the following is the substance of them. In the month of August he put in the same enclosure, wether lambs of the preceding spring, as follows: 17 Southdowns, 19 New Leicesters, 12 half bloods, a cross of the New Leicester and Southdown, and 7 Romney Marsh. They were all kept alike till June of the following year, when 12 of the Southdowns and all the half bloods were found in marketable condition; and the former were sold at 340, and the latter at 330, sterling. None of the New Leicesters or Romney Marshes were in marketable condition. This experiment shows the superiority of the Southdowns and half bloods, where it is desirable to sell at an early age.*

A part of each kind was kept over for further experiments, and it was found that between June and the 7th of September, (ten weeks,) the Southdowns had gained 13 per cent., the New Leicester 21 per cent., the half bloods 13 per cent., and the Romney Marshes 14 per cent. Here was a gain of 8 per cent. by the New Leicester, and 1 per cent. by the Romney Marshes, over the half bloods and Southdowns. This is naturally to be accounted for so far as relates to the Southdowns, from the circumstance of the two sorts, which had gained, being of a larger breed than the Southdowns. It will be recollected that the New Leicester wethers at two years old weigh 22 pounds to the quarter, the Romney Marshes 25, and the Southdowns only 18. They were now, (7th September,) about one and a half years old, and consequently it was to have been expected that the *larger breeds*, which had fallen back during the winter, should increase more rapidly during the summer, than the smaller ones, in order to attain their appropriate weight at two years old. They were weighed again the 1st of December following, when the Southdowns had lost 3 per cent., the new Leicesters 2 per cent., the half bloods 4 per cent., the Romney Marshes had gained one third of 1 per cent. All the sorts, it will be observed, must have continued to gain for some time after the 7th of September, and the larger breeds, for the reasons here stated, must have gained more rapidly than the smaller ones, till winter set in. At this period all would begin to lose, and the loss exhibited above *was not the whole loss*. What had been gained between the

* This experiment shows that the Southdown sheep bear starvation better than the New Leicester, but is not at all decisive of their earlier maturity under different treatment. Had the sheep been kept so as to prevent them from losing flesh in the winter and sold as soon as they were in condition in the spring, the result would probably have been very different.

We find during the time that they had plenty to eat, from June to September, that the New Leicester gained 21 per cent., while the Southdowns gained 13 per cent. Here it is likely the gain is much greater in the New Leicester than meets the eye. We are told that the New Leicesters are of a larger breed than the Southdowns, of course any per cent. upon a large animal, is much more than the same per cent. upon a small one. Blacklock gives the average weight of the New Leicester at 18 to 26 lbs. per quarter, and their wool at 6 to 8 per fleece. The Southdown is averaged by him from 15 to 18 lbs. per quarter, and their fleece from 2½ to 3 lbs. From the above it appears the New Leicester has 22 lbs. most mutton, and his wool at 20 cents, and the Southdowns 25 cents, which is about the market price of the two, the New Leicester fleece will be found to be worth about double the Southdown in Kentucky, where coarse wools bear relatively a higher price than fine.

For mutton I have no doubt that the Costwold and New Leicester, will both make a better cross with the Merino, than the Southdown. For wool I think neither of them should be used as a cross unless it be desirable to make coarser wool, when the cross with the New Leicester will be found to give double the quantity. S. D. M.

7th September and the period at which they began to fall off, should have been added. If these circumstances be taken into consideration, this experiment would be very favorable to the Southdowns; but the next experiment is still more decisive in their favor. They were weighed again the first of March following, when it was found the Southdowns had lost, between the 1st of December and 1st of March, four per cent., the New Leicesters 14 per cent., the half bloods 10 per cent., and the Romney Marshes 5 per cent. During the second as well as during the first winter, the Southdowns exhibited a decided advantage over the New Leicesters. The Romney Marshes, it will be seen, stand upon almost as good ground as the Southdown, and did much better than the New Leicesters.

The next experiment shows that from the 1st of Dec. to June 19th, the Southdowns gained 13 per cent., the New Leicesters 9 per cent., the half bloods, 9 per cent., and the Romney Marshes 17 per cent. Here again the advantage is decidedly in favor of the Southdowns and Romney Marshes.

The experiment was continued through the third summer, when, as might be expected, the New Leicesters again took the lead; and as the result of the whole experiment it is stated "that the profit for two years and two months feed, adding the value of the wool, was 5*d.* and a fraction per week for the Romney Marshes, and from 4*d.* to 7½*d.* for the New Leicesters, from the time of their being lambed. The former part of the experiment had shown that the Southdowns and half bloods, at the age of 64 weeks, gave 7*d.* per week profit.*

Thus it appears by a course of experiments fully and fairly made, by the Earl of Egremont, that the Southdowns, even for the purposes of mutton, are decidedly more profitable than the New Leicesters. And this result follows without allowing any thing for the *increased quantity of food* consumed by the New Leicesters, or for the *superiority* of the mutton of the Southdowns. It is a well established general principle, that the larger the animal the more food they will require. Here the Southdowns, the smaller animal, upon the same kind of keep, gave 7*d.* profit per week, at the age of 64 weeks, whilst the New Leicesters at the age of 113 weeks, gave a profit of only 4*d.* to 4½*d.* per week. The wool of the Southdowns is also more valuable. Those of a good quality will average three pounds, worth 2*s.* 6*d*, (60 cts.) per pound, whilst the wool of the New Leicesters averaged, (ewes and wethers,) about seven pounds, is worth only 10*d.*, (20 cts.) The annual product of the wool of the Southdowns would be 180 cents, and of the New Leicesters only 140 cents.*

I have been induced to go into these details in relation to the merits of the New Leicester and Southdown sheep and of the Romney Marsh breed, in consequence of a strong impression having been made in this state that the New Leicesters would be the best stock for us to adopt with a view to mutton and common clothing wool. I am decidedly of opinion that for both purposes the Southdown breed of sheep would be greatly preferable. The mutton of the latter, in point of flavor, is greatly superior, the wool is every way better adapted to clothing purposes, the sheep are hardier, thrive better in winter, and would suit admirably the hilly regions, which predominate in the eastern, and south-eastern borders of Kentucky.† I am also of opinion that the Romney Marsh breed would be finely adapted to the flat and marshy lands which predominate in some of the new states and which are also found on the borders of some of our rivers.

"The New Leicesters will become valuable when we engage in manufacturing worsted, which will require combing wool, but in the mean time the best of our native breeds, improved by the introduction of the Southdown and Merinoes, will be better adapted to our circumstances and wants.

"I have hitherto only treated of the native sheep of Great Britain. It is wonderful that a people who paid so much attention to sheep husbandry and who were so extensively engaged in the manufacture of fine wool, should so long have totally neglected to introduce the Merino breed, confessedly the finest woolled sheep that existed any where in Europe. This was owing in part to their prejudices in favor of their own Ryelands and Southdowns and partly to an opinion that the Merinoes could not exist in the climate of England, or that if they could, they would so degenerate as to be less valuable than their own native sheep. It was imagined "Spain possessed some peculiar advantages of soil and climate which it would be in vain to look for elsewhere. And it was believed, says a British writer, "that the superior fineness of the Spanish fleeces was derived *entirely* from some peculiarity of the soil and climate." This opinion was so firmly fixed, says the same writer, "that he who asserted the contrary was regarded by agriculturists and clothiers as a speculative theorist, only deserving pity." Yet long anterior to the period when these *notions* were so strongly predominant in England, the Merino breeds had been introduced into Sweden. As early as 1739 "the Swe-

* This experiment would have looked a little more like it had been *fairly* made if the weights of the Southdowns had been given when they were sold, and the weights of the New Leicester the seventh of September when they were ready for market. But to keep animals that were fat in the fall of the year, and let them fall off in the winter and then compare their gain per week with those sold the summer before, looks like any thing but *fairness*.

If the sheep had been kept in growing order all the time, this experiment would no doubt have exhibited a very different result; and the question would not have been which kind would bear starvation best, but which would give most gain for feed consumed. There appears to be something unfair in taking for granted what is not proved, "that the larger the animal the more food they will require." It may be "a well established general principle," when applied to animals of the same family, but even then there will be found exceptions, but when applied to animals of different families, it should never be taken for granted, but should be proved before an argument can be based upon it.

S. D. M.

* These estimates are made in reference to the English market.

In the Kentucky market the New Leicester fleece would bring 60 cents most.

† See quotations from Blacklock, between pages 14 and 15. S. D. M.

dish government, for the promotion of this race, instituted a school of shepherds, under the care of Mr. Alstrœmer, (who first introduced the Merino sheep into Sweden in 1723,) and public funds were appointed for granting premiums to those who sold rams of this breed. These premiums were continued up to the year 1792, when being no longer necessary, they were discontinued.

Merinoes were introduced into Saxony as early as 1765, and they were attended to with such assiduity, skill and judgment, that the flocks of that country, in point of fineness of staple, soon came to excel the finest Spanish Merinoes.

"These examples did not escape the notice of France. In 1776, this celebrated breed of sheep was introduced into that country by Mr. Trandain, intendant of finances, under the direction of the celebrated naturalist, d'Aubenton. This experiment succeeded so well as to convince the government, "that it was easy to introduce and preserve a race of sheep in France, producing superfine wool; and in the year 1786, a selection of 376 rams and ewes, from the finest flocks in Spain, was made and were conducted under the care of a mayor, to the farm of Rambouillet." It was not until after all these experiments, that an effort was made to introduce these celebrated sheep into England. The first efforts were made by individuals in 1787, but the importation then made attracted but little attention, and scarcely excited any interest. "The sheep, however, (says an English writer,) *lived*, though treated in the English manner, and the wool *had not deteriorated.*" These facts having proved that the Merino race of sheep could be naturalized in Great Britain, the then reigning monarch, Geo. III., in 1792 obtained from the Marquis of Campoalonjo, five rams and thirty-five ewes of the Nigrette race."

It might have been supposed, now that the sovereign of the country had taken a personal interest in introducing the Merino breed of sheep, that all prejudices against them would have subsided; but such was not the fact. "Although the wool was admitted to be equally fine, with the best wool imported from Spain," yet the manufacturers would not give the same price for it, "fearing that it might not prove equally good when manufactured;" and the king was compelled to have his wool manufactured on his own account, "to demonstrate its fitness for superfine cloth." So slow is the progress of truth in overthrowing *prejudice* and *error*. The merits of the Merino breed finally triumphed over all obstacles, and they are now deservedly held in Great Britain in the very highest repute, both as regards the pure breed and the crosses upon the best English stock. It has been ascertained that a cross of the *best* Merino rams upon the finest Ryeland ewes, requires *five* crosses to produce as fine wool from the mixed breed as from the pure stock. Thus a cross upon Ryeland ewes, bearing wool worth 3*s*. will produce a breed bearing wool worth 3*s*. 7*d*., and each subsequent cross will add 7*d*. to the value of the wool, so that after the *fifth* cross, the offspring will bear wool worth as much as the Spanish, that is, 6*s*. per pound, provided the *rams and ewes* are of the *finest quality* at the *commencement of the cross*. This shows the error of the opinion, that the new Leicester, or any other of the coarse long woolled sheep, will furnish a good cross for the Merino race. Next to the Ryelands, Southdown ewes of the finest quality furnish the best cross of any of the native sheep of Great Britain. The United States not having commenced manufacturing fine wool, at the period when the Merinoes were introduced into England, had not the same inducement to make an effort to naturalize that valuable race. But not long afterwards, Chancellor Livingston, our embassador at the court of France, studying to promote the interests of his country, by all the means in his power, turned his attention to this subject, and in the year 1802, selected "two pair of the finest Merinoes he could," from the improved flocks of France, "and sent them over under the care of one of his own servants, intending to follow them by others."* These, says Mr. Livingston, "were the first couples ever imported into the United States,"

Shortly after this period, Col. Humphreys, of Connecticut, introduced directly from Spain, a considerable number of this valuable race. These importations laid the foundation of the Merino breed of sheep, which are now so numerous in the United States. They were first introduced into Kentucky by Mr. Seth Adams, in the year 1809. A small proportion only of his flock were of the full bloods, the balance being the produce of a cross upon the native sheep of the country. Shortly afterwards, Mr. Prentice, Mr. Lewis Sanders, and other spirited gentlemen, introduced a number of the pure blooded Merinoes. In the year 1829, the Hon. Henry Clay imported from the western part of Pennsylvania, a flock of fifty full bloods, being a selection from one of the best in Washington county. These and other importations have laid the foundation of the Merino flocks in Kentucky, and nothing is now wanting, but sufficient attention and skill, in the management of our sheep husbandry, to secure to us a full participation of the great advantages which must accrue to the United States from the rearing of fine woolled sheep."

"The political contests of the day and the selfish views of ambitious aspirants, may for a time depress the interests of agriculture and of *sheep husbandry in particular*, but it is impossible, that this can continue to be the case for any great length of time. When we look at our present population and take into consideration the well established fact, that it increases in a ratio of 33⅓ per cent. every ten years; that our exports except in a single article (cotton) instead of increasing in a ratio with our population, is continually diminishing, when we see the results of our present system, (depending upon foreigners to manufacture for us what we could so easily manufacture for ourselves) a system encouraged and promoted by the legislature of the national government; to the periodical reversions in trade of the most alarming and distressing character, arising in a great degree, from too extensive reliance upon foreigners to supply us with *clothing, blankets, and other necessaries.* * * * When we shall learn wisdom from experience, we shall be compelled (though perhaps not until after long and severe suffering) to do as all wise nations have done before us, protect our *agricultural interest*

* Livingston's Essay on Sheep, p 9.

by giving protection *to those who manufacture the raw products of our agriculture.* When this period shall arrive, our Merino flocks, as well as those of other races will be found to be of immense value and of great importance to the general interests of the country. Wool to the amount of two hundred millions of pounds would be produced, (if due encouragement shall be afforded,) before our population shall have reached thirty millions, which will happen within the next twenty years, and in ten years thereafter it will probably have reached forty millions."* What vast results, then, are to spring from a proper attention to sheep husbandry! How immensely will the wealth and comfort of our citizens be promoted and the fertility of the soil increased by rearing and feeding 66,000,000 of sheep! But the direct advantages resulting from sheep husbandry will not be all. Other agricultural pursuits will be greatly promoted, first, by diverting a portion of agricultural industry from those branches which have been pushed to too great an excess; and secondly, by the new market that will be furnished for agricultural products, by the numerous class of individuals who will be employed in manufacturing the immense quantity of wool, which the United States are capable of growing. Too much attention cannot be given to this important subject. Fine wool, as well as that of a medium quality, (such as will be produced by Southdowns and a Merino cross upon that valuable stock,) and the product of our native stock will all be objects of much importance. And when the manufacture of worsted stuff goods shall be extensively introduced, combing wool will also be in great demand.

Sheep husbandry is important for three purposes, 1 wool; 2 mutton and tallow; 3 as a means of manuring and fertilizing our soil. I have sufficiently treated of the two first; the third is too important to be passed over in silence. I have heretofore suggested that much manure may be saved by folding sheep of nights. It is doubtful, however, whether the injury to the health of sheep will not be too serious to justify that practice, in warm weather; but in cool frosty weather folding sheep of nights may be safely resorted to. But whenever the practice of folding, for a length of time, in the same place, is pursued, the pen should be kept well littered with straw, [or leaves,] as well for the comfort of the sheep as with a view of increasing the quantity of manure.

It will be most convenient to have the sheep fold adjoining a shelter under which the racks and troughs are placed. The shelter should be entirely open on one side, with a south or south-eastern exposure, and enclosed on the opposite side; with a suitable building at each end, one for hay and the other for roots for winter and early spring feeding until the pastures are sufficiently advanced.* It would be most convenient to have the sheepfold and house adjoining a meadow, on which the sheep should be suffered to range during the day. This will be beneficial to the health of the sheep, and their manure will be saved, and distributed without the expense of hauling. With a view of the like saving of manure during the part of the year in which the sheep are not folded of nights, they should be suffered to range, as far as circumstances will admit, upon grounds intended for future cultivation.

In England it is a common practice to feed off their turnip crop to sheep, upon the ground upon which it grew. This is done by enclosing a small space with hurdles, into which the sheep are put and continued until they consume all the turnips growing within the enclosure; another space is then enclosed and fed off and so on in succession until all are consumed. This is found to be a very convenient practice in England, as it saves labor, both in feeding and distributing the manure, and might be adopted here with great advantage, if, upon experiment, it shall be found that the ruta baga† will succeed well in our soil and climate and is sufficiently hardy to stand our winters.

A species of cabbage, that is sufficiently hardy to stand the winter in England, is frequently fed off to sheep, upon the ground upon which it grew, in the same manner as turnips, and it would be worthy of inquiry and experiment whether cabbages suitable to our climate and soil could not be raised to advantage for feeding sheep, during the short period we cannot furnish them with grass or while the grass is covered with snow.

It is probable that the sugar beet will be found to be a more valuable crop in our dry soils than any description of turnips.‡

---

*" The Albany Cultivator estimates the number of sheep in the wool growing states of the north at 15,000,000."

This estimate I consider greatly too low. The single county of Washington, Pennsylvania, has 1,000,000.

The balance of this note is a table showing the increase of our population from 1790 to be 33 1-3 per cent. for every ten years. This table I deem it unnecessary now to copy. The census that has been taken since our author wrote proves the correctness of his calculation.

The population of the United States is now 17,068,180.

The population of Kentucky is 776,923. S. D. M.

* If the blue grass pastures have been permitted to grow the latter part of the season, they will afford green food all the winter, and upon this and pastures of green rye, the sheep will do better and be more healthy than fed in any other way. These pastures are good all the winter. The sheep should be turned off them the 1st of March to give them an opportunity of producing a good crop of grass. The rye fields, will now support them until the 25th of April, when they can be turned again upon the blue grass pastures. M.

† The ruta baga succeeds but poorly upon my farm. I have raised many crops, and although I have drilled them very early as well as late, and worked them well, I have never raised a crop that were at all to compare with the accounts I have seen of this root.

I thought for a few years that the fault might be in my seed, and procured seed from a great variety of seed stores, yet the result was the same. The ruta baga grows mostly above ground, and will not stand our winters without protection. We have a large turnip that grows mostly under ground that will stand our winters well. Early sown in May has done best with the ruta baga.

‡ The sugar beet is much more productive than the ruta baga, and until last year was a very certain crop. Mine were injured the season before last, but were entirely destroyed last year by a dark-striped blistering fly (Cantharis vitata) generally called the potato fly. Those flies or rather bugs destroyed my potatoes, carrots, parsnips, beets, and cabbage. If these bugs should

The latter are so subject to be destroyed by insects when they first come up ; and are so liable to be injured by drought, as to render them too uncertain to be relied upon as a crop for winter food for stock. The beet crop is much less subject to injury from insects, and will probably be found more productive.

One of the great recommendations of sheep husbandry is that it can be carried on extensively with less labor than any other branch of farming producing the same profits. If blue grass pastures are saved for them, and the quantity of rye before recommended be sown, they will not require feeding more than ten days upon an average in a year, and this feeding may be done with oats, hay, or corn-stalk fodder. Where there is a deficiency of blue grass, other means must be resorted to for the purpose of supplying them with winter food. Rye holds a place with me next to blue grass ; but it is not expected that rye will produce food for a large flock of sheep all winter, I would then recommend that oats, clover hay, timothy hay, and hay from any other grass that the farm will produce be provided in sufficient quantity to winter them, and after this raise as many roots as you can.

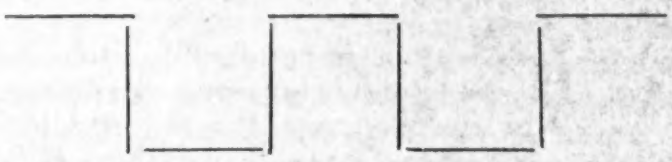
In the mountainous regions where caves are plenty the best place to keep those roots that require protection is in one of those caves. Roots will not freeze thirty yards from the entrance of any of those caves unless the mouth is very wide and high ; and if that should be the case put them in a little farther.

Roots keep well buried in the ground, about fifty bushels in a place. They should be laid on the surface and piled up as high as they can be, and have leaves or straw put over them, and be covered by throwing on a foot of earth. A stick two inches in diameter should be stuck in the top of the pile and after the dirt is put on, tread the dirt around the stick, and pull it out, and have a little bundle of straw large enough to fill the hole, and put it in it. The straw or leaves will prevent the roots from getting dirty, but they will keep equally as well without. In England rape is very much used for the purpose of feeding sheep and enriching the land. It supplies a rich and very fattening food for sheep the latter part of summer and in the fall. It is particularly serviceable in fattening those that are for sale, and preparing those that are kept, for passing better through the winter. An acre of good rape will last one hundred sheep ten days. Experiments should be made for the purpose of ascertaining whether rape be suitable for our soil and climate. If it should succeed with us, it would be particularly valuable in enabling us to save our blue grass pastures for winter use. It is generally sown on the poorest ground, which it speedily enriches. But it will grow better upon rich ground. A few acres are fenced off for them at a time.

The climate of Kentucky is particularly congenial to sheep. When they can have green food all winter, they are subject to scarcely any disease. When confined and fed upon dry food they are not so healthy, and great loss of lambs is sustained by those who have nothing green for their sheep during the suckling season. Sheep bear confinement worse than any other of our domestic animals.

Although I have said above that where blue grass pastures can be obtained that sheep will not require more than ten days feed during the winter, yet I would recommend that provision be provided for feeding them two months. Each sheep will eat about two pounds of hay a day.

I would recommend that the hay for the sheep be stacked in the meadow where it was cut in the following manner. Plant a smooth pole from 6 to 10 inches in diameter firmly in the ground, and around this make your stack of hay, beginning small and swelling very much to the middle and then tapering again to the top. As before observed salt should be sprinkled on whilst building the stack. When the ground is covered with snow so that the sheep cannot get grass, they should be turned into the meadow which should also have water in it. A spring should be included in the meadow, if possible, as it would afford them a constant supply of water, without breaking the ice, which accumulates so fast upon our ponds and streams, that although it may be broken three times a day, still, in extreme cold weather, the stock will suffer for want of water. I would recommend that shelters be formed in the meadow in the following way. Build a fence by placing each rail upon the other at right angles, so as to form pens thus :



these pens should be covered with cornstalks fodder, straw or whatever is most convenient. On the back part they should have cornstalk fodder stacked against them, which should be protected from the sheep by a fence run around, if the shelter is not made in a division fence, which will generally be most convenient. The fodder stacked against the back of the pens may be fed away to other stock late in the spring when it will be no longer needed at the pens. The pens that are not open to the sheep (for it will be perceived upon this plan they will have access to only half the pens) may be also covered and will serve to keep pumpkins and cabbage covered with straw for the winter use of the sheep.

It will be perceived that I recommend temporary shelters instead of permanent ones. For which I give the following reasons: My system contemplates a rotation of crops, and this meadow will in a few years be cultivated in other crops ; and another meadow with another set of temporary shelters be brought into requisition. The manure that accumulates about the pens will be easily spread over the meadow, or over the adjoining corn-fields. The straw used for covering the pumpkins and cabbage may be thrown into the pens for a litter as they are fed away. But above all, this plan will prevent the sheep from being crowded in large numbers in one pen, which is sure to injure their health. Clover makes the best hay for sheep, but it re-

---

continue as abundant as they were the last season they will cause the sugar beet to be a very uncertain or laborious crop to raise.

I killed them off mine three times, and each time my beets began again to put out leaves and grow, but they came again in such numbers as to cause me utterly to despair of exterminating them. M.

quires more care in stacking out than other hay. Clover stacks should be topped off with straw or timothy or blue grass hay in the following way. As soon as the stack is built up to the middle, straw or some other hay should be placed all round the outside as you proceed in building, for a foot from the outside, and all the centre filled with clover hay; this should be continued until the last course, which should be entirely of straw or some other hay. A stack built in this way will present on the outside, from the middle up, the appearance of being composed of straw or other hay, and will turn the rains off the stack. Clover hay will permit the rains to run through it, unless thus protected. Clover also suits better in a proper rotation upon a farm than most other grasses, yielding a large crop of hay the year after the ground has been in small grain, and enriching the ground very fast. This subject properly belongs to the treatise upon the best rotation of crops; so for the present I will say no more upon the subject.

As the selection of males is an important matter in the rearing of sheep and the chief instrument whereby the flock is to be improved, I will give the following description of a good ram, taken from Culley's Treatise on Live Stock: "His head should be fine and small; nostrils wide and expanded; eyes prominent and rather bold and daring; ears thin; his collar full from his breast and shoulders, but tapering all the way to where the neck and head join, which should be very fine and graceful, being perfectly free from any coarse leather hanging down;* the shoulders broad and full, which must at the same time join so easy to the collar forward and chine backward, as to leave not the least hollow in either place; the mutton upon his arm or foreleg must come quite to the knee; his legs upright, with a clean fine bone, being equally clear from superfluous skin and coarse hairy wool, from the knee downwards; the breast broad and well forward, which will keep his forelegs at a proper wideness; his girth, or chest, full and deep, and instead of a hollow behind the shoulders, that part by some called the forelock should be quite full; the back and loins broad, flat, and straight, from which the ribs must rise with a fine circular arch; his belly straight; the quarters long and full, with the mutton quite down to the hough, which should neither stand in nor out; his twist (i. e., the junction on the inside the thigh) deep, wide, and full, which, with the broad breast, will keep his forelegs open and upright; the whole body covered with a thin pelt, and that with a fine, bright and soft wool."

Besides the above characteristics, it is of the utmost importance that the wool be of the quality desired. And he should be pure blooded of his kind.

In the mountainous regions, if large flocks should be kept, the shepherd should be almost constantly with the sheep. In enclosed lands a very effectual guard against dogs is two or three cows with young calves, in the same lot with the sheep. If a dog comes into such a pasture, the sheep will run to the cows, and they will be ready to fight for their calves, and will immediately chase the dogs out of the enclosure. I have lost no sheep with dogs when I have kept them with cows and their young calves.

There is at least four millions of acres of mountain lands within the boundary of Kentucky, and it would be a very moderate calculation to say that those mountains would support one sheep to the acre now, and as they become improved, two or more would find support there. Four millions of sheep would require a population to attend to them of forty thousand persons, supposing that every man, woman and child could attend to one hundred each, and would afford an income of one hundred dollars for each member of the family, calculating the wool at one dollar per fleece, beside the increase of the flock.

It would require 30,000 persons to manufacture this wool (if done by hand) into coarse cloth, and a much larger number to make fine cloth.

Thus those mountains would easily be made to sustain four millions of sheep, which would give wages of $100 each to seventy thousand inhabitants.

In Spain and some other countries the wool is washed after the sheep have been shorn. In England, Ireland, Silesia, Saxony, and in the northern parts of the United States the wool is washed upon the sheep, The following is Baron Shultz's account of the Swedish manner:

"Before shearing, the wool is almost universally washed upon the sheep. Some persons wash the sheep in the open sea, or in running water, but this is never so clean as when the sheep are first washed in a large tub, with one part clear lie, two parts lukewarm water, with a small quantity of urine; and then in another tub, with less lie in the water; after which the sheep are washed, laying them always on their backs, with their heads up, in a tub of clean water; and lastly there is poured on the sheep standing on the ground a sufficient quantity of water, which is as much as possible squeezed out of the wool." After the sheep are washed they are driven into a clean green pasture, where they remain until they are dry."

In Silesia the method usually practised simply consists in making the sheep crop a running stream after obliging them to plunge in, from a pretty high bridge.

In Saxony they are made to cross a brook or river; the next morning they are again made to cross the river, in which they are dipped that the fleece may be uniformly penetrated; after which they are stroked or pressed down with the hands, beginning at the head and proceeding thence to their extremities.

After the sheep are dry they are sheared, and the "improved method consists in cutting circularly round the body of the animal, the beauty of which is, in consequence of this, believed to be increased, while the work is more uniformily and closely executed. The shearer holds the sheep under him, either with his knee or left arm, and clips the wool with spring shears, which he can manage with one hand, and thus performs the operation without assistance, unless the sheep are unusually strong and restive. The entire fleece is stripped at once and rolled up together, and the

* The Merino sheep have much loose skin hanging down under their necks and throats. This is a characteristic mark of the breed, yet much may be done to get rid of this leather by selecting those rams that have the least of it.

qualities are afterwards assorted by the wool stapler." Before the shearing is commenced the sheep should have all the coarse and *kempy* wool from the hips, legs, pate and forehead sheared off and kept apart from the other wool. Further, great care should be taken in shearing not to give the wool a second cut, as it materially injures and wastes the wool.

During the whole process of shearing care should be taken that the sheep be not injured by clipping the skin.

The fleece should then be laid on the side that was next the sheep, the sides and belly part turned in, and beginning behind should be carefully rolled to the shoulders, when the wool of the forepart should be rolled back to meet the roll from behind, and should be secured by tying it with twine.

Sheep of the long woolled tribes have been shorn twice in the season, but the experiments have not been attended with any advantage. And short woolled sheep of the Merino breed (which breed does not shed their wool) have been allowed to wear their fleeces several years. Experiments of this kind were made at the French national farm of Rambouillet, from 1804 to 1814, which proved that fleeces worn from three to five years were superior in staple and produced a larger sum than those that were annually shorn. This was also the case in an experiment lately made by Lord Western, whose Merino wether with a fleece of three years' growth produced thirty-two pounds of wool twelve inches long and of beautiful and fine quality.

Lord Western proposed to show a Merino wether against any other breed, on condition that size should not pass for merit; and Mr. Hicks took it up, and produced a Southdown wether supposed to weight 160 lbs., and the judge decided in favor of the Merino.

The butcher (Mr. Barwell, of Witham) who purchased the Merino, says, (in a letter to Lord Western,) "the carcass of this sheep, inside and out, was as good as I ever had; and in point of color the Merinoes carry generally a brighter red and white than any other breed.*

A writer in the western Farmer and Gardener over the signature of "Umbra," who writes like a man of sense and observation, (but whose opinions and observations are not entitled to as much weight as if his name had been given,) says that the cross of the Southdown with the Merino and with the Leicesters have each proved failures.†

A letter from Mr. Twyman, an English gentleman, says, that he has completely succeeded in combining the good qualities of the Southdown and Leicester, the wool being as long as the latter but much finer and closer like the former. One hundred which were shorn at thirteen and a half months old, produced, on an average, nine and a half pounds of wool each. The sheep were sold directly after being sheared at three guineas each, and two shillings per lb. was refused for the wool.

The importation of wool into England in 1827, (the only year that I have the entire amount,) amounted to 29,122,447 lbs. Since that time the amount imported has increased very much.

England, that is not twice as large as Kentucky, produced in the year 1800, 77,964,760 lbs. of wool, and in 1828, 92,280,480 lbs.*

What England has done Kentucky *can do*.

S. D. MARTIN.

* Farmer's Cabinet, Vol. 5, page 377, taken from English Farmer's Magazine.

† Page 261, Vol. 2.

FARMING AT WESTOVER.

By the Editor.

In the latter part of March, in company with two very young farmers, I visited Mr. John A. Selden, of Westover, and passed the greater part of the day in walking over that highly improved and beautifully cultivated farm, and conversing with its proprietor. Such a visit, to any one who has either agricultural taste or pursuits, cannot fail to bring both pleasure and profitable instruction. Something of what we saw, and what was said, principally by Mr. Selden in answer to inquiries, will be here stated.

Notwithstanding its great amount of annual product, Westover is quite a small farm, compared to the lands of most cultivators in eastern Virginia, even in middling circumstances. The original tract gives but four fields of 100 acres each; and the farm proper now is no larger.—There is some back land since purchased, and as yet unimproved, kept for wood and pasture; and also 100 acres of arable land on the river, still more lately bought, and then generally poor, and which is yet but partly improved, and has as yet added but little to the general product of the farm.

* The number of sheep in the United Kingdom of Great Britain in 1828, was 44,100,000. Supposing that each of these sheep produced one dollar's worth of wool, it would be about $75 each for every *white* man, woman and child in Kentucky, giving to every one in cities their shares. There was exported from England in 1828, $29,898,505 worth of the single article of spun and wove woollen goods, besides many articles in which it formed a constituent part; for instance hats to the amount of $159,485.

In 1839, Australia produced 20,128,774 lbs. of wool, where 22 years before there had been produced in that country only 345 lbs. 100 years ago in Ireland there were 1,500,000 persons engaged in manufacturing wool, and their wages amounted annually to about $58,687,000. About 1830 the number of persons engaged in the manufacture of wool in England was 480,000 to 500,000 and their average wages were from $96, to $100 each. The value of the raw material was about $30,000,000, and the manufactured articles $90,000,000. In 1835 there was imported from England into the United States, $13,000,000 worth of woollen goods. If this had been *made at home* it would have given employment to 130,000 persons at wages of $100 each.

About 1770 machinery which enabled (in 1800) one man to do as much work as had been done by three before, was first introduced.

For further information upon sheep, permit me to refer to the society's* treatise upon sheep and Blacklock's treatise written in England in 1838, and just published in the United States in 1841.

* The (English) Society for the Diffusion of Useful Knowledge. S. D. M.

The addition of this 100 acres permitted Mr. Selden to plan the adding a fifth field and crop, to his before well known four-field rotation. But subsequent circumstances required him to abandon or postpone the intention of that change, before it was commenced; and now, as before, his rotation is the four-field, of three grain crops and one of clover, which has become so celebrated by its successful practice at Curles' Neck, Shirley, and Westover, and which has been so ably advocated by the published opinions and arguments, as well as the successful practice, of Mr. Hill Carter and Mr. Selden. The latter seems to have returned from his meditated partial abandonment, to his "old love" of the four-shift rotation, with even increased ardor and confidence. And though I have heretofore objected to this rotation, as too scourging, and as contrary to the sound principles of rotation (in the three consecutive grain crops,) and though still holding to these opinions, as to lands in general; still it must be admitted, if the question is to be judged of by practical results, that it is scarcely possible to imagine a better rotation for combining profit and improvement, than Mr. Selden's, on his good land, and with his good management. The rotation (as has often been stated in this publication) is 1st, wheat on clover fallow; 2d, corn; 3d, wheat (and oats,) with clover sown, and 4th clover, to be turned in by a deep and well executed ploughing in August and September, then to recommence the course with wheat again. The designed alteration was to introduce a green manure crop of broad-cast field (or Indian) peas the year after corn, to be turned in for wheat; making the rotation, 1st, wheat, 2d corn, 3d, peas, 4th, wheat, and 5th, clover. And this, on lighter or fouler lands than Westover, I still deem a much preferable rotation.

At this season of the year, of course, there is nothing to be seen of crops, except young wheat and young clover. The oats were just being sown, and the land for corn not yet harrowed for planting, but remaining as left by the deep and excellent ploughing done early in the winter. But even at this early season, the fields of both clover and wheat were beautiful. The wheat following corn, (which was on the richest field,) promised better than any I had before seen in that always objectionable succession; indeed, if judged by the growth only, I should have supposed it to be fallow wheat. That however on clover lay, was of course much better.

There are five kinds of wheat growing, and it was remarkable to see such different manner of growth of different kinds, exhibited so early. One object of having so many kinds was to compare their characters and products; and as it is hoped that the results will be noted and reported hereafter by Mr. Selden himself, no more will be here said of the difference of present appearance, or of what he supposes of their qualities. The bulk of the crop is of the Turkey wheat, a kind which he began to raise from a very small stock, 19 or 20 years ago, and which he has continued to prefer, and sow, ever since. He uses great care in fanning his seed wheat, to get rid of all the lighter and smaller grains. This he deems essential to the preserving of a good stock; but with this care used, he does not believe in any wheat degenerating by being continually sown on the same farm. In this, he and his neighbor, Mr. Hill Carter, hold opposite opinions, as stated in a recent communication by the latter to the Farmers' Register.

The clover field was completely covered with green, and nothing but clover to be seen. The remarkable cleanness of the land, and the entire possession that each desired crop has of all the ground given to it, is one of the most striking benefits of his rotation.

Mr. Selden however thinks that one cleansing, or tilled crop, in each rotation, is essential to preserve cleanness, and to obtain a well set crop of clover; though the rotation with clover fallow is more cleansing than without it, even though the one hoed cross (corn) should recur as often, or oftener, as in the three-shift rotation. In proof of the latter opinion, he adduced the fact that wire-grass, which was very troublesome on some parts of his fields, when he commenced his rotation, has been very much diminished, and almost subdued by the present rotation, without any other special care or labor directed to eradicate that pest. He showed me a striking proof of the truth of the opinion, that it is essential to the having of a well-set and clean clover field, that it should be preceded by the hoed or cleansing crop as recently as in his present rotation. In his field which is elsewhere thickly covered by clover, there is scarcely any to be seen on a part bounded by an exact line. The only difference of treatment was, that this part, by some previous difference of cultivation, or change of arrangement of the fields, had remained at rest the year after wheat, instead of being in corn with the balance of the field. During that year of rest it was pretty well covered by a growth of volunteer clover (none being sown on the wheat preceding corn,) and was fallowed and put in wheat with the corn-land of the balance of the field. All alike was sown in clover on the wheat the next February, (1841;) and the result is, that while all the balance of the field of wheat after corn, is completely set in clover, this part has scarcely any clover standing.

Mr. Selden thinks that the best time to sow clover seed is as strictly limited in duration, as the best time to sow wheat; and that that time is generally the last week in February. If sown much earlier, and a warm spell occurs, the seed is apt to sprout, and the plants be killed by succeeding severe cold. If sown much later, and the season be not very favorable, much of the seed may not sprout at all, in time, or the growth be in danger from the summer's drought. But of course it is not possible to come always within this best and short time, and never when sowing after oats—which was going on then—the oat seeding not being finished (March 25th,) and which (contrary to general opinion,) Mr. Selden thought not at all too late for the best prospect of that crop. The clover seed was easily and accurately sown from a seed-box, the advantage of which plan is so great and manifest, that it is strange that any farmer who sees the process can fail to follow the example. The beds being 11 feet wide, the box is made 10 feet long to suit, and is about 4 inches deep, and 3 in width; it is open at top like a trough, and is divided into 10 equal compartments, by cross partitions. In the bottom at every distance of 6 inches, there is bored a hole, (say half an inch in diameter,) each of which is covered by a card or piece of paste-board, through which is *burnt*, by a heated wire, a hole about the

eighth of an inch in diameter. The size of the holes of course must be fixed at first by trial of the rate of seeding. But when once fixed, and the same borer kept for use, there is no more trouble in regulating the rate. The seeding is very regular, and equal. A gallon to the acre is the most that is ever given—and sometimes only 3 quarts, and found an ample allowance. The manner of using this box is for the sower to carry it horizontally across and in front of the middle of his body, supported by a leather strap over his shoulders, and the box kept evenly poised by his hands. He walks at ordinary rate along the middle of each bed, and at every step shifts the box a few inches, first to one side and then to the other. The box is made of light plank only a quarter of an inch thick; and, with seed in every compartment, the weight is not considerable, and the labor light enough. As no skill is requisite, any laborer, at first trial, can sow with perfect accuracy. I had deemed my plan of sowing, by throwing the seeds against a board, (described in a former volume,) to be a very valuable improvement upon the usual mode of casting the seed. But the sowing box is better. And this is an example of how long a simple implement or process may remain almost in disuse, merely because it is not seen in actual operation. This sowing box is pictured and described in Bordley's Husbandry, where I saw it more than thirty years ago, (for it was one of the books read for amusement in my boyhood,) and which I have never since heard of being used, until seen now. There is another machine described in that same book, for gathering clover seed, by a comb-edged box on wheels, or barrow, drawn by a horse. I went once to the shop of Jabez Parker to order such a machine to be made, but was discouraged and prevented by learning that he had made but for one order, and that one a long time before.—Hence, I concluded, as of the sowing box, and as most farmers are very apt to conclude of new implements known only by description, that it would certainly have been more in use, if not attended by some insuperable objection. On the other hand, the most *taking* recommendation of any new implement, is that many other farmers have already bought it. Thus, hundreds, (including myself with many much better farmers, whose *names* alone seduced me into the scrape,) formerly bought Clark's thrashing machine, the most unmitigated cheat of a machine of which I ever heard; as to no purchaser was it worth a cent. If agricultural societies were worth any thing, one of their most useful operations would be to cause to be *tried* as well as *exhibited*, all new or improved implements, by having the trial executed by a judicious farmer, and causing to be published his report of the result. Such *practical* and *disinterested trials* of implements would bring into use all that deserve it; whereas, the mere *exhibition* of new implements and machines at the show of an agricultural society, is rather calculated to aid the success and progress of humbug and deception.

There was one practice seen, and which seemed by the results to justify Mr. Selden's approbation, which I would otherwise have thought certainly wrong, and have always acted and advised otherwise. This is, the *not* cleaning out the water-furrows between the beds, but on the contrary rather working so in preparing for and covering the seed wheat, as partially to fill up and level the existing furrows. I had always supposed that any land requiring beds and water-furrows, for better drainage, would require that the furrows should be kept open and clean. And also, supposing that any plants growing therein would perish with wet, or at least be feeble and produce poorly, it was inferred that it was even better for economy to have a deep, narrow water-furrow, open and clear of all plants, that the shoulders of the furrows, or outsides of the beds, might be better raised, and safer from wetness. Mr. Selden however, thinks differently, and says that both the wheat and clover grow as well, generally, in the furrows as on the beds, excepting from the greater depth of soil and greater fertility of the crowns of the ridges. Even this difference does not prevent the heads of wheat, when grown, appearing nearly level. On spots particularly subject to wet, only, he has the water furrows kept deep and open. It is certain that at the time of viewing, the wheat in the furrows where not opened seemed none the worse for being so low. It may yet be questioned whether land whose texture and surface will permit such treatment, though a clay loam, and nearly level, as is this farm, might not be cultivated level, or without beds, safely, and yield as well. Mr. Selden thinks that even if this were so, it is more economical of labor in ploughing to have beds. One of the gains which he counts upon, is the space left unbroken and covered by the meeting on the old water-furrow of the two first furrow-slices thrown, in reversing the beds, when turning in the clover lay for the next crop of wheat. The space so covered by the large ploughs used, must be at least two feet in the bed of eleven feet. However contrary to reason, as some might suppose, Mr. Selden, and most other good farmers hold with "Arator" that there is no disadvantage in leaving this covered strip unbroken. The so leaving it, certainly makes much neater and easier ploughing, and in a greater degree than the mere saving the labor of ploughing two more furrows.

Upon inquiring of Mr. Selden what were his views as to applying manure on the surface, he said that he carried out manure, and so applied it without the fear of loss, at any time of the year, when he had it to dispose of, and the labor was convenient. He preferred, however, to plough under the unrotted farm-yard manure that was to be used for the corn crop. He was then hauling out wheat straw from the stack, and spreading it on the clover field at the rate of about 18 or 20 large ox-cart-loads to the acre. This quantity, when spread, was so thick that I should have feared it would smother much of the clover; but was told there was no danger of that result. But though this top-dressing will be no doubt highly beneficial to the clover and still more to the wheat of next year, I think it would have been far better if applied last summer or autumn, or early in winter. However, it could not be earlier here, as the carts have been hauling out the straw (of a crop of 5000 bushels of wheat made last year,) as long and as often as the limited force, and the other heavy demands for labor permitted. One of the younger farmers present, who would not presume to compare either farming knowledge or practical operations in any respect with Mr. Selden,

had used straw to considerable extent in like manner, but much earlier, and therefore as he deemed more profitably. This was last summer, and only on the galled and poorer spots of his reaped wheat field, sown in clover the preceding spring. The clover on such places already is better grown than on the immediately surrounding and better ground. As much as convenient of this straw was carried out to the field as thrown out from the thrashing machine, in return loads of the carts bringing in wheat from the field. This saved nearly all the cost of carriage; and the carts were loaded (carelessly and but partiatly) with less labor than would have been required to put the same straw on the stack. Besides, if the loaders in the field had any spare time between the departure of one cart and the arrival of another, they could be profitably employed in spreading the return loads of straw.

To this *late* application of straw, by Mr. Selden, which could not be helped, I must add one other fault in his management which he might and ought to have avoided, as he has been throughout a regular reader of the Farmers' Register, where he might find more correct views on this head. Having recently bought a vessel load of slacked but still caustic stone lime, he had 500 bushels of it spread over the litter in his cattle yard. The action of the quick-lime on the dung and other most putrescent parts of the manure will necessarily be injurious, and more or less destructive of the enriching principles.

Mr. Selden uses lime largely, and to great benefit. He applies it in the manner described in vol. i., as then practised by the late Fielding Lewis of Weyanoke, about 72 bushels to the acre. Oyster shells cost 62 1-2 cents the hogshead of 18 bushels. Latterly, slacked stone lime is brought by vessels from New England, loaded in bulk, which may be bought for 10 or 11 cents on contract. It has been sold here as low as 9 cents. It is cheaper, Mr. Selden thinks, than using water-borne marl; which is gratifying to learn, as all farms on tide-water may be as cheaply supplied with lime, whereas but few (requiring it) can obtain marl by water carriage. Mr. Selden never fails to find satisfactory benefit from his liming. He has not yet quite dressed all his arable land. As soon as gone over once, he intends to begin a second application in smaller quantities.

Gypsum is sown regularly on every clover crop, and generally, though not always, with good effect. From failing formerly, Mr. Selden was induced to believe that it was less effective if sown before the severe frosts were over; and therefore always delays the application until after that danger is passed. In this opinion, he must be mistaken.

Though clover is greatly improved by the liming, yet it stood well on all the farm even before lime was applied. That, and the effectiveness of gypsum also in advance of the liming, would alone suffice to prove to me that the soil was originally rich, "neutral," and of admirable constitution, even if its appearance and texture did not teach the same.

Mr. Selden is of opinion that the growth of oats is more exhausting than wheat; but deems the crop essential to farm economy, in the greater cheapness of feeding horses by using part oats, with the staw, instead of with all corn and corn fodder. His regular mode and measure of feeding his work mules are as follows for each one: morning, two quarts of corn alone; noon, one quart of corn and half a bushel of cut oats; night, one quart of corn and a bushel of cut oats. On this allowance, if it be certainly and regularly given, Mr. S. considers that mules cannot fail to keep in good order, while doing good work. It is very certain that the ploughing teams of Mr. S. are kept in good order; and all who know the rotation and manner of tillage at Westover, know that unusually heavy ploughing labors are performed. No corn fodder gathered, or hay made or used. For the usual business of pulling of corn fodder there is no time or labor to spare; and none is pulled, except a little for the sheep; and the clover is given as manure to the land it grows on, instead of being mown for hay. Thirty acres of the richest part of the land in corn the preceding year are annually put in oats, and the crop is an ample supply for the 12 working mules and 3 horses kept on the estate. As the oats grow on the richest land, of course there is so much the more of straw in proportion to the grain, and the chopped stuff is much poorer than is usual of oats from poor land.

Most persons may find advantage in comparing practically and accurately, the above mode of feeding with their own, or that which is usual where plentiful or sufficient feeding is *intended* to be allowed. This allowance is, for each mule or horse, from 6 to 10 *ears* of corn, (selected at the discretion of the ploughman, who of course picks the largest size,) thrice a day, and as much corn fodder in the rack as the animal will eat, and more for his waste.

The readers of the Farmers' Register may remember that Mr. Selden, in his first communication, vol. i., lamented his not being able to make more use of oxen, owing to the fact of his cattle being so subject to die of distemper. Upon inquiring concerning that matter, I learned that there had been no case of that strange disease on his farm for some years. He attributes his exemption, (and thinks that the same means of prevention will serve every where,) to the use of a mixture of salt, sulphur and tar, kept constantly in troughs for the cattle to lick at will, through summer and autumn. I have heard from another experienced and observant farmer, the assertion of the like confidence in that preventive medicine. This distemper is a most mysterious disease; and it is much to be regretted that so few of the remarkable facts of its prevalence and disappearance have been made public. During the time that its frequent occurrence at Westover was a serious obstacle to the full use of oxen, and since to this time, on the Coggins' Point farm, immediately across the river from Westover, there has not been a known case of that disease in 29 years. Nor have I known of a certain case in the neighboring part of Prince George county during that time; though such may possibly have occurred, and even on my own farm formerly, without the true character of the disease being suspected. Indeed, while the distemper has been most destructive elsewhere, it is not understood to have existed in that neighborhood since about 1780, when, in the course of two summers, more than half the cattle of the county, and especially the fattest, died of distemper. This I have

heard from William Weeks, an intelligent observer, and now the oldest man living in that neighborhood.

Mr. Selden's oxen now (raised on the farm) are much finer animals than are often met with in eastern Virginia. He sold two pairs not long since to be worked at the Navy Yard, Portsmouth, for $100 the pair, which is about double the usual price of what are called *very good* oxen. Those we saw at work would prove that his cattle fare well, and likewise that the cause of the distemper is not (as some suppose) to be found in clover, or other good grass, being plentiful, and the cattle being fat.

The Hessian fly, so destructive to wheat elsewhere and generally, is not found to be any important cause of diminution to the crops at Westover. If sown in good time, (say commencing the 10th of October,) and the land is good and well prepared, the vigor of the growth will be sufficient protection against the attacks of the fly. Mr. Selden does not doubt but that these insects are numerous in his wheat, and does not suppose that their depredations are harmless. But at least they show such little effect, as never alone to have prevented the making a good crop from good land, other circumstances being not unfavorable.

In my own practice, I have found no such exemption from this infliction. But my land was not only much less fit to bear heavy crops of wheat, and my cultivation far less perfect than here, but also, the wheat fields were not grazed and gleaned after harvest by stock, and therefore all the wasted grains grew to furnish food for an intermediate brood of Hessian fly. And if there are successive broods of the fly, this must be a very efficient means to nourish and increase them. I am now convinced of my error in adhering so entirely and so long to the non-grazing system. Besides the benefits that I would count on to the stock from gleaning the wheat fields after harvest, and the preventing the growth of volunteer wheat to sustain a new brood of Hessian fly, Mr. Selden thinks that the partial grazing of the field, or rather the trampling which accompanies it, is essential to the best success of the clover sown on the wheat. And if the grazing after harvest is beneficial, for this reason, on the stiff loam of Westover, it must be much more necessary and desirable on soil too light to be well adapted to wheat.

OIL AND STEARINE FROM LARD, &c.

Published by the National Agricultural Society.

[The following communication on the subject of oil and stearine, has, on request, been transmitted to the Commissioner of Patents, and will be read with interest.]

Stearic acid, or stearine, as it is improperly called, is the solid constituent of fatty substances, such as oil, tallow, lard, &c., and which can be separated in a crystalline form by saponification with alkaline matter and abstraction of the alkali by an acid. By this process fats are convertible into the stearic, margaric, and oleic acids combined, to separate which alcohol is used, which holds the two latter in solution after having dropped the stearic acid in crystals.

Pure stearic acid is prepared thus: boil together in the proper equivalent proportions a solution of an alkali, say potash with tallow; by this process a soap is formed; of this soap dissolve one part in six parts of hot water, then add to the solution 40 or 50 parts of cold water, and set the whole where the temperature is about 52° Fahrenheit. The bistearate and bi-margarate of potash, pearly in appearance, fall to the bottom, which are to be separated by and washed upon a filter. An additional quantity of these salts is afforded by evaporating the filtered liquor, saturating with an acid the alkali left free by the precipitation of the above salts, and then adding water. By a repetition of this operation, if conducted carefully, the solution is freed from all of these solid acids, leaving therefore nothing but the oleic. After having washed these bi-salts, digest them in twenty-four times their weight of boiling alcohol of specific gravity 0.820, upon cooling the bi-stearate precipitates, while the greater part of the bi-margarate and the remainder of the oleate is held in solution. By redissolving in alcohol as before, the whole of the bi-margarate is got rid of, leaving the bi-stearate alone, the purity of which can be tested by decomposing a small portion in water at the boiling temperature with hydrochloric acid, letting it cool, washing the stearic acid obtained, and exposing it to a heat, which, if pure, will not melt in water under 158º Fahrenheit; should it fuse at a lower temperature, it is to be inferred that there is more or less margaric acid present, to get rid of which repeat the solution in alcohol in the mode as directed before.

We then have *pure* bi-stearate potash. From this we separate the stearic acid, by decomposing it in boiling water with hydrochloric acid. The stearic acid which falls down, is to be washed by melting in water, cooled, dried and dissolved in boiling alcohol, from which crystals will fall during refrigeration.

Thus obtained, the stearine contains combined water, from which it is difficult to separate it.

In June, 1825, a patent was granted in England to Mr. Gay Lussac for making these candles, but owing to their comparatively great cost, they could not, although superior to other kinds, be introduced into general use. Lately, however, the great objection has been obviated by the many improvements which have been made in the *modus operandi* of manufacturing these candles. The substitution of lime for potash in saponifying, is one of the most important; and to such perfection has the process now been brought, that the London block, containing only 3 per cent. of wax, and from which these candles are made, bears so handsome an appearance, and is of so good a quality, as to render it difficult to distinguish it from the most refined product of the bee.

The following is the process by which these candles are made on a large scale, both in England and France:

Tallow, lard, or any fat, is boiled with quicklime and water in a large vat, by means of perforated steam pipes distributed over its bottom. After several hours' active boiling, the combination becomes sufficiently complete. The stearate thus formed is allowed to cool until it becomes a concrete mass; it is then to be dug out, transferred to a suitable vessel, and decomposed by a sufficient quantity of sulphuric acid. This de-

composition of the soap, says the patentee, should be made in a large quantity of water, kept well stirred during the operation, and warmed by steam introduced in any convenient way. When the mixture has stood sufficiently long, the acid of the fat or tallow will rise to the surface, and the water being drawn off, will carry the alkaline or saline matters with it, but if the acids or tallow should retain any portion of the salts, repeated portions of fresh water must be added to it, and the whole well agitated until the acids have become entirely freed from alkaline matter.

The washed mixture of the three acids, stearic, margaric, and oleic, is next drawn off into tin or other suitable pans, and allowed to cool, and then reduced to thin shreds by a tallow cutter—an instrument used by all tallow chandlers.

The next step is to encase the crushed mass in canvass or carga bags, and then submit it to the action of a powerful hydraulic or the stearic cold process, a machine made for the purpose. By this means a large quantity of the oleic acid is expelled, carrying with it some little of the margaric. The cakes, after considerable pressure, are then taken out, and again subjected to the action of steam and water; after which the supernatant stearic acid is run off into pans and cooled. The cakes are then reduced to a coarse mealy powder by a rotary rasping machine, put into strong canvass bags, and submitted to the joint action of steam and pressure in a hydraulic press of appropriate construction, called Maudelay's stearine cold press. By these means the stearic acid is entirely freed from oleic acid. It is then subjected to a final cleansing in a tub with steam, melted and cooled in clean vessels. These cooled masses, owing to their crystalline texture, are unfit to be made into candles, it is therefore necessary to crush them into powder, and fuse along with it in a plated copper pan a sufficient quantity of arsenious acid. The stearine is now ready to be moulded into candles.

The wick to be used in the manufacture of these improved candles is to be made of cotton yarn, twisted rather hard, and laid in the same manner as wire is sometimes coiled round the bass strings of musical instruments. For this purpose straight rods or wires are to be procured, of suitable lengths and diameters, according to the intended size of the candle about to be made; and these wires having been covered with cotton, coiled around them as described, are to be inserted in the candle moulds as the common wicks are; and when the candle is made, and perfectly hard, the wire is to be withdrawn, leaving a hollow cylindrical aperture entirely through the middle of the candle.

C. MORFIT.

Philadelphia, February 16, 1842.

—

Mode of manufacturing Elaine and Stearine from Lard, &c. : Patented by John H. Smith, 122 *Front Smith street, New York city.*

To all whom it may concern: Be it known that I, John H. Smith, of the city of Brooklyn, in the county of Kings, and state of New York, have invented a new and useful improvement in the manner of separating from each other the elaine and stearine which are contained in lard, by means of which improved process the operation is much facilitated, and the products are obtained in a high degree of purity; and I do hereby declare that the following is a full and exact description thereof:

The first process to be performed upon the lard is that of boiling, which may be effected either by the direct application of fire to the kettle, or by means of steam; when the latter is employed, I cause a steam tube to descend from a steam boiler into the vessel containing the lard; this tube may descend to the bottom of the vessel, and be coiled round on the said bottom so as to present a large heating surface to the lard, provision being made for carrying off the water and waste steam in a manner well known; but I usually perforate this tube with numerous small holes along the whole of that portion of it which is submersed below the lard, thus allowing the whole of the steam to pass into and through the lard. To operate with advantage, the vessel in which the boiling is effected should be of considerable capacity, holding say from ten to a hundred barrels. The length of time required for boiling will vary much, according to the quality of the lard; that which is fresh may not require to be boiled for more than four or five hours, whilst that which has been long kept may require twelve hours. It is of great importance to the perfecting of the separation of the stearine and elaine, that the boiling should be continued for a considerable period as above indicated.

My most important improvement in the within described process, consists in the employment of alcohol, which I mixed with the lard in the kettle, or boiler, at the commencement of the operation. When the lard has become sufficiently fluid, I gradually pour and stir into it about one gallon of alcohol to every eighty gallons of lard, taking care to incorporate the two as intimately as possible; and this has the effect of causing a very perfect separation of the stearine and elaine from each other by the spontaneous granulation of the former, which takes place when the boiled lard is allowed to cool in a state of rest. I sometimes combine camphor with the alcohol, dissolving about one fourth of a pound in each gallon of alcohol, which not only gives an agreeable odor to the products, but appears to co-operate with the alcohol to effect the object in view; the camphor, however, is not an essential ingredient, and may be omitted. Spirit of lower proof than alcohol may be used, but not with equal benefit.

After the boiling of the lard with the alcohol has been continued for a sufficient length of time, the fire is withdrawn, or the supply of steam cut off, and the mass is allowed to cool sufficiently to admit of its being laded, or drawn off into hogsheads, or other suitable coolers, where it is to be left at perfect rest until it has cooled down, and acquired the ordinary temperature of the atmosphere; as the cooling proceeds, the granulation consequent upon the separation of the stearine and elaine will take place and become perfect. The material is then to be put into bags, and pressed moderately, under a press of any suitable kind, which will cause the elaine to flow out in a state of great purity, there not being contained within it any appreciable portion of the stearine; this pressure is to be continued until the stearine is as dry as it can be made in this way.

The masses of the solid material thus obtain-

ed are to be remelted, and in this state to be poured into boxes or pans, of a capacity of ten or twelve gallons, and allowed to form lumps which I denominate blocks; then when removed from the vessels and piled, or stacked up for a week or ten days, more or less, the room containing it should be at a temperature of nearly 80°, which will cause a sweating or oozing from the blocks, and they will improve in quality; the blocks are then to be rolled into cloths or put into bags, and these placed between plates, and submitted to very heavy pressure by means of a hydraulic press. After this pressure it is brought again into the form of blocks, and these are to be cut up by means of revolving, or other knives, or cutters; the pieces thus obtained are to be put into bags, and subjected to the action of hot water, or of steam, in a press, until it becomes hard enough to be manufactured into candles, or put up for other purposes to which it may be desired to apply it.

The manner of subjecting it to the action of heated water, or of steam, is to place the bags containing the stearine in a box, or chest, into which heated water, or steam, may be introduced, but not to such extent as to fuse the stearine. A follower is then to be placed against the bags contained in the box, or chest, and moderate pressure made upon them; the material will now be found to have acquired all the required hardness, and to posses a wax-like consistence, such as would generally cause it to be mistaken for wax.

I am aware that alcohol has been used for the purpose of separating elaine and stearine from each other in analytical chemistry, but the lard or other fatty matter consisting of these substances, has, in this case, been dissolved in the heated alcohol, and the whole has been suffered to cool together; this process would be altogether inapplicable to manufacturing purposes, as the cost would exceed the value of the product. In my manufacturing process, instead of dissolving the lard in alcohol, I add a small proportionate quantity of the latter to the former, the whole of which is driven off at an early period of the ebullition, but by its presence, or catalytically, disposes the elaine or stearine to separate from each other, which they do after long boiling and subsequent cooling. I do not, therefore, claim the use of alcohol in separating elaine and stearine from each other, by dissolving the fatty matter in heated alcohol, and by subsequently cooling the solution; but what I do claim as of my invention, and wish to secure by letters patent, is the within described method of effectively promoting their separation, by incorporating alcohol, highly rectified spirits, with the lard in small proportionate quantities, say one gallon, more or less, of said alcohol, or spirit, to eighty gallons of lard, and then boiling the mixture for several hours, by which boiling the whole of the alcohol will be driven off, but will have left the elaine and stearine with a disposition to separate from each other on subsequent cooling, as herein indicated and made known. JOHN H. SMITH.

Witnesses,
T. H. PATTERSON,
H. S. FITCH.

ON THE DIFFERENT SCHEMES OF ROTATION.

To the Editor of the Farmers' Register.

In your February number there is a very interesting paper, over the signature of N., on the subject of rotations. Being myself an ardent votary to the cause of agriculture, and having had some little experience on the subject of rotations, and being still in quest of truth, or rather light, upon the subject, I am induced to comply with the request of my brother farmer, in my poor way, as far as my limited experience and observation extends, upon the subject of his inquiry.

Looking to experience as the only correct teacher in agriculture, and having had so few successful pioneers in this art, in this our much abused and maltreated tide-water section of Virginia, that it has become, or was necessary until recently, (as we have now many more good farmers in the field than formerly,) for every one that wished to improve his lands, or his husbandry, to experiment for himself; it has therefore fallen to my lot to have tried most of the rotations of the different gentlemen as brought in review by N. That most or all the gentlemen mentioned by N. are successful cultivators, and improvers of the soil, I do not doubt, and that all have done well under the rotation followed by each; but it does not follow that some, if indeed not all, might not have done better under another rotation, and I hardly suppose that either gentleman would contend that his was a perfect system. Let us then first examine a little into the three field rotation, as recommended by Tabb, Roy, and Harrison; as, if my memory does not deceive me, that was the rotation recommended by those gentlemen. Mr. Tabb, then, in the first place, owns one of the finest estates in all Virginia, or perhaps naturally in America; when I say naturally, I mean original fertility of soil, and one that perhaps, with almost any tillage, it was impossible to wear out, being of the very best description of Gloucester low grounds; a soil perhaps of several feet in thickness, unless sooner coming in contact with marl or some calcareous earth, which is the underlying stratum of this soil. Superadded to this, Mr. T. is a very judicious man in all his affairs, and a most excellent cultivator and improver of the soil; and also having it in his power, if necessary, to draw from extraneous funds to aid in his farming operations. And, if I mistake not, Mr. Tabb has a fourth of his farm in a standing pasture, which enables him to keep a very large stock, by which means he is enabled to apply a very large amount of animal and animalized matter to his land, independent of the clover and other vegetable matter grown on the fields cultivated. Is it to be wondered at that, under all these peculiar advantages, Mr. Tabb's land should do well and even produce abundant crops under the three-field rotation? Advantages that scarcely any lands in the state are subject to, to wit: being naturally rich, producing perhaps, when cleared, 10, 12, or more barrels of corn to the acre, a soil almost inexhaustible; for many years under the excellent management of its owner, with every adventitious circumstance that could be desired; I say it is not to be wondered at that it should do well under the three-field rotation of corn, wheat and clover. But if I mistake not, there is some fallowing in the way too, with Mr. Tabb, so that I

think a part of his land does not come under a hoe crop but once in six years. Now surely it could not be advisable to put an old worn out estate of naturally poor land under the same system as Mr. Tabb's, if we desire or expect a rapid, or indeed improvement at all.

Let us now take a view of Mr. Roy's estate, with his three-field rotation. Mr. Roy's estate lies in Mathews, the adjoining county to Gloucester; his land not originally of the naturally fertile soil of the Gloucester low grounds, but still I believe it was what we call good land, of character to retain all that is put on it in the way of improvement. I do not know that he has used marl or lime; if he has not used the latter, it must be because he does not think his land requires it, as he could I suppose easily command it in any quantity and at a cheap rate. But this I know, that he, his manager, and his father before him, have been good manurers, and if I mistake not, he manures the greater part of his field intended for corn every year that it comes into cultivation; so that I should not think it at all strange that his land should improve under the three-field rotation. But it must be kept in mind that, situated as Mr. Roy is, immediately on an inlet of the Chesapeake bay, he has access to as much sea weed as he can use, and perhaps other resources for making manure, that are not available to every one, and no one ever doubted that if you could manure your land every year, it would improve under an annual tillage. Whether the Mathews lands succeed well in fallow for small grain I am not advised; if they do not, doubtless the three-field rotation may be the most profitable they can adopt. But even that I should doubt; as a longer action of the atmospherical influences upon the same surface, together with the increased quantity of stock and manure, which a more lengthened rotation would admit of being kept and made, would, I have no doubt, with less labor, produce a greater amount of crop.

We will now visit Brandon, and see if Mr. Harrison enjoys no facilities for improving his land, other than are common to farmers generally. There can be no doubt but that the land on the Brandon estate must have greatly improved under the occupancy of the present owners, as I have been credibly informed that the product is now double of what it was under the regime of the father of the present occupant. But I am rather under the impression that some of the Brandon land is under the four-field rotation, and that they fallow on at least a portion of the estate. But be that as it may, I have always heard that the land on that estate was originally good, if not rich; it is also, I believe, a fine wheat soil, and well adapted to clover, and I presume the plaster acts well. I believe now the lands of those estates are all limed or marled; how much they had improved before they commenced liming, I am not aware. Another advantage I think I have heard those estates enjoyed was, that of an extensive marsh or piece of wet land, too wet for cultivation, but affording good pasture to a large number of cattle, thereby indirectly adding another field to the rotation, grazing the cultivated fields only at certain periods of the year, giving the arable lands the benefit of all the manure they make both winter and summer; and I presume grazing is allowed partially at particular seasons. I do not, therefore, Mr. Editor, think that either of the farmers alluded to by N., pursuing the three-field rotation, ought, properly speaking, to be held up as models for a general system. Nor do I think it by any means proved that either of these gentlemen, under a more lengthened rotation, with their general good management, would not have arrived at much higher results than they have yet attained. They have no doubt thought it best to "let *well* alone," and in their situations doubtless they were right. But "as one swallow does not make a summer," neither do three good farmers, being comparatively successful under peculiar circumstances in a particular rotation, make that rotation preferable to all others.

As your correspondent N. seems to have passed over the four field-rotation, it might not be necessary that I should notice it in this communication; but as we are writing and speaking for information upon the subject of rotations, I will even give it a word in passing. The Arator four-field system I have seen tried in all its varieties, and have never seen much good corn from it in any way. It is true Arator himself succeeded very well with it at Hazlewood; but no where else that I am aware of. That is, he succeeded very well in bringing back his land to its original fertility, and he made very heavy crops of corn; but never made wheat successfully, as I have been informed. But be it remembered, that Hazelwood was originally of the best description of Rappahannock low grounds. The four-field rotation as pursued on James river of late years by those successful and justly celebrated farmers, Messrs. Carter, Sèlden, Harrison, &c. &c., on originally good land, of deep soil, with the management of these gentlemen succeeded very well for a time, but the two former have abandoned it, thinking the five-field a better, or even six-field preferable, when circumstances allowed it. This I inferred from their communications a year or two ago in the Register. But there is a four-field rotation which a friend of mine is now trying, which, if he succeeds with making clover take well after corn, will, I think, supersede all others on natural corn land, that is, on land naturally better adapted to corn than wheat, particularly all those extensive flats lying on our tide-water rivers, where corn is the main staple, and navigation at the doors. The rotation then, which my friend is now proposing to try, is simply reversing the Arator four-field system; that is, by following wheat with corn instead of corn with wheat, say thus, 1st wheat, 2nd corn, (sowing clover seed the last time the corn is cultivated,) so that the third year the clover will be at maturity; that year let it ripen and fall on the land, and the fourth year pasture it, and that fall fallow it and sow it in wheat, reserving as much for oats the next spring as the farmer may deem advisable. By this system, if the clover succeeds after corn, you will have the full benefit of the clover crop by protecting the lands from the summer suns as well as the winter frosts, and washing after corn. And the next year the stock (as much by the way as the land will *well* maintain) trampling and breaking the dry vegetable matter to pieces, and depositing their manure and urine upon it, your land will have a fine top or surface dressing of vegetable and animalized manure. The latter I hold to be altogether indispensable to the attainment of a high

state of productive fertility. I say *productive* fertility, because I have seen a great deal of land that was seemingly rich, but would not produce heavy crops of grain, and I believe for the very reason that it wanted the animalized matter and the compactness which the hoof gives it. It being now admitted, I believe, by most judicious farmers that applying manure on the surface and on grass land is the preferable way of using it, my friend proposes applying all his winter-made manure to the clover field the spring after it is sown. The summer cow-pens would of course be on the pasture fields intended for fallow that fall, which being cleansed of a number of pests by grazing and of all over-luxuriant vegetation, with a handsome sprinkling of manure all over the field, and the land, if light, rendered compact, and if stiff, the sponginess removed by trampling, will by September be in a fine state for the plough, and, I should think, of productiveness for the wheat crop. We all know that corn will grow well after wheat, but it is very rarely that wheat ever succeeds after corn. And the reason is very manifest; because in the cultivation of the corn crop, all the productive powers of the land are brought into action, and the wheat following immediately after, before the land has any time to rest from the draught of the most exhausting crop we grow, the natural result must be an indifferent crop of wheat. Whereas, by following wheat with corn, the wheat does not exhaust the land as much as corn, and we have the whole of the aftermath of stubble, clover, grass, weeds, &c., to turn in, as well as giving the land eight months to recuperate its soil on or near the surface. None of these advantages are derived by the wheat after corn. I am aware it is considered bad husbandry in all the good farming districts in Europe to follow one grain crop with another, and I dare say it is; but still I have generally seen corn succeed very well after wheat, particularly on good land. It strikes me this proposed rotation of my friend has but one objection to it, and that may be a fatal one, viz.: the doubt of the success of the clover, after corn. But he is sanguine of success on good land that has been marled. But, as I before observed, I would not advocate this system to the exclusion of the five or six-field rotation on other than lands naturally much better adapted to corn than wheat, and that to on navigable water, or very contiguous to market.

Having dwelt much longer on this part of the subject than I had intended, we will now pass on to the five-field rotation, which is more particularly the subject of inquiry of your correspondent N., and the only one I intended at first to touch upon in this communication. N. says he has "unconditionally made up his mind to adopt the five-field rotation," and therefore, if I had the disposition, it would be useless to attempt to divert him from it; but in this I have no wish; as from some years' experience I can highly recommend it, as at least a profitable and improving rotation. I will not say it is preferable to any other, or to the six-field rotation; but I know that in a few years a farm may be made to double its production. But to proceed more directly to answer his queries respecting the choice of the two methods pursued by himself, and that of Mr. Wickham, or the common five-field rotation as pursued by most persons who have adopted that number of fields, I unhesitatingly answer, after some experience with both, that I prefer the latter, or Mr. Wickham's plan. I have tried the pea fallow two years after corn, both by cultivating them and sowing broad-cast, the latter moderately, and very thick; but it all would not do, the crab grass, (*Digitaria sanguinatis*,) took possession, and the most indifferent wheat in the field was on the pea land, and no clover followed. In one case I sowed the clover seed, and in the other there ought to have been plenty of seed in the land; but in neither case was there any product. Again, another, and I think a more important objection to N.'s rotation is, there is no time or space for grazing, which with N. I hold to be indispensable on all lands that I have yet seen cultivated; superadded to this, are the objections urged by N. himself—the expense and labor of the pea fallow. Now, as regards the objection urged by Mr. Harrison to the five-field rotation, that it would become too foul, I can answer experimentally, to what probably was advanced by him as an opinion, there is no danger, I can assure him of his land not becoming too foul under that system, but the reverse is the fact, that it is decidedly more cleansing than the old three-field, as the summer fallow is far more effectual in rooting out the briers, shrubs, &c. than winter grubbing and grazing. The fifth year I have found sufficiently cleansing for all good farming purposes. Indeed I think you will find it much more so than the five-field rotation, embracing the pea fallow. The second objection, as suggested by Mr. Selden, I think you will also find a speculative one, as I never sow clover on fallow wheat, and so far I have always had a good crop. But you must understand me, though, all this time as speaking of marled land, as I suppose he was, as our lands without calcareous matter are in the general too poor for good farming in any way.

To the third objection, that of rendering the land too close and compact, by trampling the year before corn, I would say, it will not I think be found to hold good upon trial, as I think, upon such land as N. describes his to be. He will make a decidedly better crop, by grazing than upon a foul field. From some experience in both of the five-field rotations, I should decidedly prefer the No. 2 of N., or Mr. Wickham's. There are two, and only two objections to the five-field rotation that I am aware of, and they might not be applicable to all farms or situations, as to mine; the first is, that of small grain crops following the corn, and the next is, that with me one fifth did not give me pasture enough to enable me to keep stock sufficient for the use of the farm; and if we are to waste as much land in a piny old field, to be called a standing pasture, we had as well make a sixth field, and bring it in regular rotation of cultivation. This latter rotation I think, on lands adapted to wheat, and not immediately available to navigation or to market, is decidedly the preferable rotation of any of the foregoing. If I adopt the six-field system, I would say 1st, corn, 2d, clover sown after corn, 3d, wheat, 4th, clover, 5th, clover, the two last to be grazed but not two heavily, 6th, wheat. By this system one field might be manured annually, and so the whole farm once in six years. As to the quantity of land cultivated, it would be the same with the old or Arator four-field system,

except that there would be one-sixth, instead of one-fourth in corn, and two-sixths in small grain instead of one-fourth, making three-sixths or one-half in cultivation, as in the other. Now locality, nature of soil, &c., must determine every farmer as to the rotation best adapted to his situation and circumstances. But I have no doubt, that upon wheat land the six-field rotation will be found most profitable, and upon all I have no doubt most improving. I am a decided friend to grass and stock. Without the one, we cannot have the other. With good grass we can have good stock with which we can enrich our lands, and give plenty and comfort to all its inhabitants, whether of the biped or quadruped race; and in a little while I know by experience that the *net* return of the long will be better than the short rotation.

Having now, Mr. Editor, answered as far as my experience goes all the queries of your correspondent N., and I dare say by this time you are heartily tired of my prosing, I will subscribe myself, your friend—and a

FRIEND TO LENGTHENED ROTATIONS.

April 9th, 1842.

[If our correspondent had not chosen to withhold his name, he would have been known to be, as we believe, a personal acquaintance and friend of all the individuals whose names he has mentioned, and one who has visited most if not all the farms particularly referred to. But still we think that he is mistaken in regard to some of the circumstances which he supposes to exist, and especially as to the abundance of the means of fertilization possessed or available. But we will not undertake to make the corrections which appear to be needed, lest, for want of proper information, we might also err, and in more important matters. It is therefore left to the farmers named, all of whom have been our much valued correspondents on this general subject, to correct any mistakes deemed in any way important, into which our present correspondent may have fallen.

In respect to the scheme of having clover to follow corn, it would undoubtedly be an improvement of the highest value, if the crop can be rendered at all certain. But, judging from our own experiments of several years' continuance, (as reported formerly in the Farmers' Register,) and which were made in the anxious hope and sanguine expectation of successful results, we greatly fear that this admirable plan of rotation cannot be realized, even on marled lands. But still we are far from desiring to discourage farther and full trials—and shall rejoice in learning that the difficulties and disappointments, to which we were formerly subjected, were not insuperable, and may be obviated by more care and better knowledge.—Ed. F. R.

OPINIONS OF NORTHERN FARMERS CONCERNING LIME.

From the Massachusetts Ploughman.

About the year 1836 or '7, I prepared a compost consisting of 12 loads of peat muck, 4 casks quick lime, and eight loads long manure. On the 20th of June I turned over about three-fourths of an acre of green sward and manured in the hill with the above compost, and planted with potatoes. A more luxuriant growth of vines I never saw, which I attributed to the manure, but have since given the credit to the green crop of grass turned in. Owing to dry weather and early frost the crop of potatoes was rather small. However, I considered the theory on the use of lime well established, not only by the result of my experiment, but I had most of the agricultural papers on my side. The next spring I purchased 50 casks of lime which I used in nearly half as many different ways, the last of which was to place about a dozen loads of lime and peat muck compost around the roots of some apple trees, to prevent the grass from growing, which succeeded to admiration, and this I am convinced is the only benefit I have ever derived from the use of lime as a manure. This is the only essential humbug that agricultural writers who are better versed in theory than in practice have ever fastened upon my shoulders, and probably will be the last for some time to come, for my confidence in what they say is almost entirely lost.

[We congratulate "A Highland Farmer" that he has escaped with so little loss as the expense of 54 casks of lime and the labor of applying it to his fields.

The idea of destroying the whole grass crop under his apple trees by spreading on lime is not bad. Lime will kill the *sward*, the *canker worms*, and the *manure* with which it is mixed—it is much more certain to kill than to assist the growth of vegetation; and if it were not too costly we would recommend it to be spread on thistles, bushes, &c., which are to be destroyed.

In regard to the theories on farming, published by those who have no experience in the business, we are inclined to think that lime will have no effect on them. Their authors have wallowed in lime till their coats are as white as their hands—and still they crawl about and show signs of life, crying lime! lime! They wonder that farmers are so stupid as to doubt the value of lime; yet the only evidence they can adduce in its favor, on our New England soils, is from theorists who have made no actual trials of it.

Ever since we first commenced the publication of the Cultivator we have plainly expressed our own views in regard to lime, and we have called on those who might differ from us to exhibit their evidence in its favor. But we receive *no evidence*. We have *opinions* as thick as cranberries, but no evidence that can be relied on to show the superior merits of lime in agriculture.

Beginners in farming who have no ideas of their own must copy what others have written—they are ambitious of making a noise about something or other and they may as well rant about lime as to bawl in favor of Durham cattle which they are driving about the country for sale.]—*Editor of Ploughman.*

[The first of the foregoing paragraphs is an ex-

tract from a communication to a late number of the Massachusetts Ploughman, and the balance is the comment thereupon, by the editor, who is also understood to be a practical and experienced farmer. The liming farmers on James river might adduce their large experience, and a large part of their present increased productions and profits, as proofs of directly the opposite of the opinions above stated. We had before learned that liming in Massachusetts had been attended with but little profit—for what reason we had too little knowledge of existing circumstances to pretend to determine. But we would not have expected, from any degree of such ill success, whatever, in recent and limited trials of a new practice, so sweeping and general a condemnation of lime as manure, and so dogmatical and entire a denial of good effects, which so many thousands of practical and prosperous improvers have believed in and asserted. It would have been much more like philosophical inquiry, and more likely to be conducive to the profit of the inquirers, to search, by investigation and experiments, for the peculiar circumstances, whatever they may be, which (according to facts stated above) have prevented liming in Massachusetts having the good effects undoubtedly produced by liming elsewhere. —Ed. F. R.]

REMARKS ON THE PRESENT CONDITION AND OPERATION OF THE BANKS OF VIRGINIA, AND THEIR PROSPECTS.

We had designed to state generally the result of the latest legislative action on the banks of Virginia; but that action was not completed until just before the rising of the legislature, and too late for the last number of the Farmers' Register. We shall now give a general and cursory view of the existing condition of things connected with our fraudulent banking system and its operations; which condition will probably remain until new legislation shall vary it, or until the growing distrust of bank solvency, and growing popular indignation and execration, shall operate to close the banks, and put an end, for a time, to the whole system of legalized falsehood, fraud, and villany.

It is not worth while to state particularly what is the purport of the existing banking laws of Virginia, as fixed by the latest act. Indeed, we doubt whether a single member who voted for the last law has any correct or definite opinion of the actual measure of obligation, or of penalty for violation of obligation, now imposed on the banks; or whether any two lawyers, if consulted, and advising deliberately, would agree in opinion thereon. The presidents of the banks in Richmond, it is generally understood, have written the new provisions of indulgence of most or all the bank relief laws that have been enacted since 1837; and at any rate, whether from the restrictions being thus cunningly devised for the purpose of being *totally inoperative*, while seeming to threaten awful penalties on bank failures and frauds, or whether the stupidity of legislators has alone served to reach this same desired result—it is certain that all legal penalties on the banks are, by various obstacles, rendered totally unavailable to the injured and cheated individuals who would *dare* to seek legal remedy for their wrongs, and for the frauds practised on the whole community. The legislature of Virginia, during its whole course of collusion with and thorough support of fraudulent banks and fraudulent banking, has not ventured *directly* to violate the constitution so far as to forbid individual creditors to collect debts from the banks in any and every legal mode to which other debtors are subjected. But, in practice, the same end is as completely reached. For when the claim for justice is so beset with difficulties and delays, that to obtain the benefits would cost the creditor more than he would lose by the dishonesty and discredit of his debtor, (the bank thus legalized to swindle,) it follows of course that he will continue to submit to be cheated by the debtor, rather than pay double as much to obtain legal redress as his loss so incurred.

The action of the Cincinnati mob, more than the voice of reason or the demands of honesty, caused the legislature of Ohio to compel the banks of that state to resume specie payments forthwith. The distant but plainly audible mutterings of popular discontent and indignation acted powerfully to produce the similar unlooked for events which have since been consummated, of resumption of payments by the banks (or such as did not avow bankruptcy) of Pennsylvania and Maryland. Thus then the sole excuse for continued suspension in Virginia, (which had been relied on solely because it was thought impossible to cease to serve,) was completely taken away. A little time before, it was the universal cry of all the bankites, from the wise, patriotic, moral and religious leaders and wire-pullers, down to their lowest and basest tools and mouthpieces, that "the banks of Virginia certainly *ought* to resume payment, and *could* safely resume, as soon as those of Pennsylvania and Maryland should resume—but not before." Well! instead of suspension being continued in these

almost bankrupt states, as all these bankite arguers or assertors counted on, for five years more at least, (as assured by the previous law of Pennsylvania,) resumption was suddenly and unexpectedly required and enforced; and, as we predicted, not a word more was said by our bankite orators and editors about resumption in Pennsylvania and Maryland being the only requisite for resumption in Virginia. The lie and the fraud had served its purpose up to that time—and the high dignitaries who had used it, and their most slavish and basest tools who had been continually proclaiming this alleged sole excuse and reason for suspension, quietly dropped it and made no more mention of it than if it had never been used at all to ward off resumption of payments. In the bill then before the legislature there was a provision that in case the banks of Philadelphia and Baltimore should resume payment, the banks of Virginia should also be compelled to resume within 60 days thereafter. This provision was *very well* while no such contingency was deemed possible; and would have served admirably to keep up the delusion, and give countenance to the bank falsehood and fraud founded on the suspension of northern banks. But while the bill was yet in progress, the legislatures of these two states actually passed their laws to compel their banks to resume—and our legislature *therefore* at once struck out the provision founded thereon. It could no longer serve its *designed* purpose of deceiving the public.

The recent bank relief laws require the banks to resume payment on the first day of next November. But, unless other extraneous circumstances shall before that time arise to enforce the requisition, there will be no *real* resumption then, but only such pretended and falsely asserted resumption and continuation of specie payments, as existed in February and March, 1841. The branch bank system of Virginia, (which alone would serve to render any banks irresponsible, and therefore corrupt and dishonest,) of itself will suffice to protect the banks from paying any thing worth notice for a month, or for several months. And within one month the legislature will be in session, and ready to grant any desired relief to the banks, and continued indulgence to suspension. Long before November shall arrive, as formerly, the notes of the different branches will be so exchanged that it will be very rare to see any bank note in circulation near the branch where only it promises to be payable. The Wytheville notes will be issued in Norfolk, and Norfolk notes in Clarksburg, &c. The banks will claim not to pay deposites except in "current funds," which term means the worst bank notes that the bank may choose to receive at that time and for that purpose; and though this impudent pretension and claim has no legal validity whatever, still in practice it will be maintained by the banks. Still further, the merchants are the drawers of nearly all the checks presented—and they will draw them only for "current funds." With these several strong means of protection against paying their honest debts, the banks could keep off any considerable practical resumption of payments, as well as they now avoid paying their notes for one and two dollars, which are now by law payable in specie, and which they take care to issue far away from the place of payment.

So it is, and we grieve to admit it—that the banking system of Virginia, as permitted and sanctioned by the legislature, is now more degraded in regard to honesty, and in reputation, than any we know of in all the Atlantic and most of even the western states. And there remains no hope for relief, either in the banks' forbearance to continue their frauds, or in the legislature enforcing sufficient penalties to prevent bank frauds. And full and sufficient causes of this deplorable prostration of the character of this once noble and universally honored commonwealth, are to be found in *the existing partnership of banks and state in the trade of fraud, and the enormous indebtedness of the body of bank directors and also of members of the legislature to the banks.* The reports of the bank committees recently made to both houses of the legislature sufficiently expose these astounding and deplorable truths.

From these reports appear the following important and curious facts; and for more full proof of all, and of more than we have time to charge, we refer to the two reports, and earnestly wish that they could be read by every honest citizen:

That 55 members of the last General Assembly of Virginia were then debtors to banks, in the gross sum of $111,675:

That the bank directors (so far as reported, and the reports not being complete,) were indebted to the banks, as principals and endorsers, individually or as members of commercial firms, $2,321,080, or nearly one fourth of all the capital of all the banks in the state.

The directors of the lately established Exchange Bank deserve especial notice and applause, (considering that they are such new hands at the business,) for their expertness in getting the lion's share of the spoils. The reports to the legislature show the following amount of loans and liabilities:

Capital of the Exchange Bank and its branches, - - - -	$1,782,037
Loans to and liabilities of its directors	734,930

Or more than two-fifths of the whole capital.

Capital of the Petersburg Branch of Exchange Bank - - -	$475,000
Loans to and liabilities of its directors	$219,606

Or nearly one half of the capital.

But the *crack* operators are certainly the directors of the little Branch (Exchange) Bank at Clarksville.

Capital stock, nominally $200,000, but paid in only - - -	$175,000
Loans to and liabilities of its 7 directors, - - - - -	$233,914
Or more than its whole capital by	$58,914

This we take to be the *ne plus ultra* of what are considered honest banking operations, for the accommodation and profit of bank directors.

Let it be observed that a director might be indebted to half a dozen banks, and no doubt many are indebted to several, and yet no more of his indebtedness appears in this report, than his debt to the particular office in which he is a director. We have known one single family and business connexion to have members as directors in almost every bank and branch in eastern Virginia. As most directors serve, and value their places, *merely* to borrow as much money as possible, it follows of course that they will exchange such friendly favors liberally; and each one who is greedy of large loans will seek them from as many different banks as possible. Thus, independent of all other particular influence, *growing out of family and business connexion*, a bank director has a general claim and influence, superior to other borrowers, in every bank and branch besides his own.

It further appears from the statistical facts of these reports, as drawn from the banks, (and which is precisely such as reason and general truths would have caused to be inferred,) that very few directors have any interest in the banks as stockholders, beyond the exact amount that the law *requires* them to own, to make them eligible to the appointment. This amount is 5 shares—and it is amusing to see in the report how generally each director's stock is of that precise amount. If a single share were enough for that purpose, there would have been as generally no more held. Bank directors are generally well enough informed to know that banking, (as *they* conduct it) is a very bad business for the stockholders—and is valuable only to the *borrowers*. They therefore, for much their greater number, take care to have as little as possible of the stockholding interest, and as much as possible of the borrowing interest in the business. In this town of Petersburg, these truths, (as well as other things important to directors' interest,) would seem to be especially well understood. For of the 21 directors of the 3 branch banks,

1 director, who owns the largest amount, has only - - -	25 shares
2 - - - -	own, each, 15
1 - - - - -	10
1 - - - - -	7
1 - - - - -	6
and the other 14 - - -	5 shares only.

The officers (from presidents down to runners included) of the Virginia Bank and its branches, are indebted to them, $36,367, and the officers of the Farmers' Bank and branches, $42,787. This is another powerful influence operating against resumption. The charter of the Exchange Bank prohibited this class of debts, and *therefore* there are none such there to report.

At pages 63 and 64 of this volume, we presented abstracts from the latest official reports of the three principal banks of Virginia, showing some remarkable evidences of the treachery of all these institutions, and the falsehood of the pretension that *they were using the indulgence of suspension of payments to prepare for meeting payment.* In the previous year of suspension, and of asserted and pretended preparation to pay specie at its close, (as required by the then law, and believed in by the duped people,) it appeared from those reports that the proportion of notes in circulation, to coin in the banks, had been *increased* as follows:

	January 1, 1841.	January 1, 1842.
Bank of Va.	$3.10 to $1 coin	3.38 to $1.
Farmers' Bank	3.34 to 1	3.50 to 1.
Exchange Bank	3.53 to 1	2.90 to 1.

And taking a general average, these three institutions had, during that year (1841,)

Increased their outstanding debts,	$667,462,56
Increased their circulation,	380,983,33
Decreased their specie,	27,581,23
Making total increase of liabilities,	
or of greater *inability to pay specie*,	$1,076,027,12

When we first prepared that abstract, the reports of the small western banks had not been published. Their statements are embraced in the later report of the senate, and they vary the above average a little, but not materially. That report also differs from the above, in comparing the time of April, 1841, (date of commencement of the last *avowed* suspension,) with January 1, 1842, or less than the nine last months of "preparation to resume payments;" and the general results are, that all the banks of the state, in that time, had

Increased their discounts, -	$343,016
Increased their circulation, -	859,165
	$1,202,181
Increased their specie, - - -	260,628
Which deducted, leaves of general increased liabilities, or increased inability to resume payments, - -	$940,553

We could defy any bankite to produce, from all the annals of the commercial world, between the early times of the South Sea Bubble and of Law's Mississippi Scheme, and the present and recent time of non-paying banks in America, evidence of such gross fraud, and treachery to trust and to every obligation of law and honesty, as the above statement shows, conducted as this has been by men of the highest respectability, and moreover deemed honorable, patriotic, moral, and many of them also straitly religious!!!

Many other facts stated in these reports, though of less importance, deserve to be noticed, as matters of curiosity, or of shameless abuse.

The cost of all the banking houses in Virginia, amounts to $495,495. When sold hereafter, all these bankrupt palaces will scarcely bring the fifth part of their cost. All their business might have been transacted in apartments costing much less than one fifth.

The salaries of all the officers of the banks of Virginia, amount to more than $200,000 a year, or nearly as much as would have paid the legitimate and proper expense of the civil government of the commonwealth, before the commonwealth had become involved in the trade of banking and in debt.

The amount due from the northern banks (of other states,) to those of Virginia is $207,922, and the Virginia banks owe to northern banks, $411,287.

The bad debts at the Virginia bank at Richmond, as reported by the directors - - - - -	$178,818
And the doubtful - - -	62,982
And as reported by the stockholders as bad - - - - -	220,000
And as doubtful - - -	97,000

(Neither including defalcations, or totally worthless stocks, we presume.)

But besides this table, there is another reported by the bank of Virginia, showing the "amount upon which no interest has been paid for the last 12 months," to be $630,551. When interest has not been paid on a bank debt for a year, there is generally not much to be expected of the principal. The Farmers' Bank reports a like item, amounting to $249, 014.

Some *partial* light is thrown upon the gross abuse of long continued "*accommodation*" loans. The Virginia Bank and branches, exclusive of those at Lynchburg, Norfolk, Danville and Charlestown, which made no report, "*owing to misunderstanding the question*," have debts which have been due

More than 10 years, - - -	$305,470
Between 5 and 10, - - -	458,018
Between 1 and 5, - - - -	447,031

Of the Farmers' Bank, there are answers to the question on this head, from only the two branches of Fredericksburg and Winchester. We presume that the president of the mother bank at Richmond also "did not understand the question," and that the branch presidents at Petersburg, Norfolk and elsewhere, were no more acute than their superior in Richmond. To show how much self-interest may sometimes blunt as well as sharpen intellect, we will copy from the report this puzzling question which so many presidents ("learned in the law," too,) and directors *could not understand*. It stands first in the list addressed to all the banks, and is as follows: "What amount of debt is due to each bank and branch thereof, which was originally contracted more than *ten* years past? What amount was contracted more than *five* and less than *ten* years past? And what amount contracted more than *one* year and less than *five* years past?"

One more statistical fact will be mentioned, and which only is not derived from the bank reports. It is that the last known sale of Virginia Bank stock, was at $45 the share of $100 par.

We pretend not to argue with, or to instruct any person who is interested in sustaining the banks in their course of fraud; nor any of the many true and honest men whose understandings have been so clouded by bank delusions as to believe that the system is honest and beneficial in its present operation. But, of those who admit the evils and the vices of the banking system of Virginia, and sincerely desire to have them reformed, and who have vainly counted on and waited for those persons having power to reform these institutions, we would ask, what possible ground can there be for such hope from bank officers and directors and from legislators, acting as they have done now for five years, and under influences which still exist? We entertain no expectation of either voluntary or legally coerced reformation. Nevertheless, we have full confidence that either the reformation or the destruction of the fraudulent system *will* come, and *soon*. The banks are taking their full swing of allowed

iniquity. Their directors and users foolishly believe that that is all which is needed to sustain them. But they will find their mistake. The growing depreciation of the notes, the still faster growing discredit and distrust of the banks themselves, the daily growing abhorrence of the whole fraudulent paper money system, and of the conduct of it in Virginia in particular, will all concur to demand and enforce resumption before the laws will *in good faith*. And as we believe that *bona fide* payments cannot be resumed and maintained by banks so crippled, and so deservedly discredited as those of Virginia are and will be, the forced attempt at resumption will most likely produce a final suspension, which will be then called by the true name for all bank suspensions—that is *bankruptcy*. If we are mistaken in the degree of peril of such results to the banks, or as to the time, we cannot be mistaken in this opinion, that the longer they postpone resumption, the greater will be the danger of undisguised bankruptcy from the attempt. Banks of circulation, if paying, cannot stand except when sustained by public confidence—and the banks of Virginia have so acted as to forfeit all claim to trust and confidence.

And now, when all the evils of the previous full sway of the fraudulent paper system are about to be brought upon the whole community—evils which we predicted long ago, and vainly tried to warn the agricultural community against—the cry is raised by the bankites, and will be sounded and echoed much louder yet, that the movements for bank resumption, and the action of opposers of the frauds of the banks, have caused the present and still growing distress. It would be as just and true a charge if all the wretchedness of feeling, prostration of powers, and acknowledged ruin, of a newly sobered drunkard were to be ascribed, not to his intoxicating draughts, or to his having been drunk daily for 10 years before, but to his *finally forced* state of abstinence and sobriety. It is very true, that no improvident debtor can pay his debts without inconvenience or privation—and we have never deemed as a light matter the enormous load of bank debt on the people. But debtors who will not prepare for the inevitable approaching, though distant day of payment, until forced, are generally such as would suffer the less by being thus forced to pay early rather than late. Those earlier debtors who have remained in debt to the banks during the whole past five years of suspension, and are not yet prepared to pay, *never will be prepared*. They are ruined already, or their ruin is inevitable, from their own imprudence; and no greater extension of indulgence can possibly save them. And those who have first contracted standing debts to the banks, during the time of suspension, have been therein no less imprudent, are not the less hopeless, and have no claim whatever that the public should remain under all the burdens and evils of a debased paper currency, until these new and fully warned debtors shall voluntarily retrace their false steps. If there had been any *real effort* made, either by the solvent debtors of the banks to pay their debts, or of the banks to prevent new debts and liabilities being made, the improper excess of debts might have been paid, and all impediments to resumption of bank payments would have been removed, and bank payments honestly and truly resumed, three years ago, and without any serious loss or inconvenience to the country—indeed very far less than has been suffered since, by the continuance of the fraudulent operation of non-paying banks. If great and general pecuniary distress be now pressing on the people in general, as well as on banks and their debtors, and if the pressure should cause ever so much decline in the selling prices of property, it will not be caused (as alleged by the bank organs) by measures for bank resumption, but because of the *long continued delay of resumption*, and the *total failure to prepare for resumption* both by the banks, and their improvident and reckless debtors. These deductions are so plain that they require merely to be announced to obtain the assent of unprejudiced persons. But if any such reader should still believe the current assertion, that it is bank reform, and not past bank abuses (as *we* use the term,) that causes distress, we ask what caused all the commercial and general pecuniary pressure in Virginia in 1841? During that year, as before shown, there had been no contraction of bank loans and issues, but on the contrary an actual increase of issues and of liabilities, to the amount of more than a million of dollars. Surely this reverse and adverse operation to resumption of payments ought to have prevented distress, if contraction and resumption, properly and gradually conducted, would produce greater distress. And the approach to resumption might have been abundantly slow, and yet have been safely reached by the banks before 1840. Resumption of payments, so reached, would have been better for the debtors themselves—better for the permanent stockholders, (not stock-jobbers,) by showing them earlier the true state of their wasted funds—incalculably better for the commonwealth—and better for all, except bank officers and the *borrowing and speculating and bankrupt* interests, to whom bank loans are "the breath of their nostrils," and who must cease to exist when deprived of that sustenance. It is this class that has long directed the banking policy of Virginia,

and governed the state. Its power and action even now are fearfully strong, and are dealing blows of destructive force. But they are but as the dying struggles of the hooked shark, which will soon be quieted by the death of the insatiable monster.

And now, so far as we now know and expect, we shall take leave of this subject—deeming that we have already rendered all the service in this respect to the agricultural interest, and the country, that is in our power. Nor do we believe that our labor has been vainly exercised to expose and to assail the fraudulent banking system, through this, and still more through other publications. The seeds which have been thus sown have not perished; and however little outward show there now may be of growth, the crop will yet be abundant, and the future harvest certain. Within a few years, at farthest, the fraudulent banking system of Virginia will explode, and the fraudulent principle of the system will be universally acknowledged. And, whether such be the result or not, it will be always one of the things of which we shall be most proud, that all our powers, such as they are, have been zealously exerted, though almost unaided and alone, to expose and to contend against this most iniquitous and infamous system. All that we have done, and freely and gratuitously paid, and risked the loss of, for this object—and the meeting and suffering of all the falsehood, slander, and every other act of maligant hostility of bank partisans and bank slaves, that have been brought in vain to bear us down, all will be deemed a cheap price paid for any forwarding of the final overthrow of the fraudulent paper system.—Ed. F. R.

REMARKS IN REPLY TO INQUIRIES AND STRICTURES

On an "Essay on the making, the preserving, and the applying of manures."

For the Farmers' Register.

In the number for March of the Farmers' Register, p. 100. is a neat little modest piece, signed "A Young Farmer," in which the writer of a certain essay on manures is called on to answer certain inquiries. I now avow myself as the author of that essay. For certain reasons, which even now I am not at liberty to disclose, the essay appeared, contrary to my usual wont, in an anonymous form. I greatly prefer that the productions of every man should appear with his own name appended thereto. The little that the "Young Farmer" has been pleased to tell about himself, has prepossessed me much in his favor; and I hereby invite him to pay me a visit, when I will with much pleasure more fully satisfy him on the queries propounded.

In the mean time, I will say that the above essay is founded, *in the main*, upon practice, and not upon mere theory. I intended it as a practical illustration of my own mode in making and applying manures. If the piece has any merit at all, it is this latter feature which has given it its value. The only part of the essay which has not been carried into practice, and I think *successful* practice, by myself, is that which relates to manuring by confining cattle in moveable pens. For certain reasons, which it would be tedious to explain, I think it to my interest to keep but few cattle, only enough to consume the coarser offal of my corn. But were I more remote from market, I should certainly go largely into the cattle business, restricting the number only by the amount of food I could raise for them; and this I would do, in a great measure, for the large amount of manure they would enable me to make. Having then a large number of cattle, as soon as their shelters ceased to be necessary I would begin to pen them every night, and continue the practice, until the severe weather of winter would make it proper to collect them under their shelters again. How large these pens ought to be, and how long the cattle ought to be confined to one spot, must depend, as I state in the essay, on the number of cattle kept. In this way all the manure, both liquid and solid, would be collected; nor do I see why it should not be as permanent as when removed from the farm-pen. In my own case, I never confine my cattle, except on the farm-pen and in their shelters, and the sole reason is, that I have too few to make it an object to resort to moveable pens.

As to the inquiry about hogs, I would answer that the close confinement to which I subject mine is the result of necessity, not of choice. The same reasons which influence me to keep but few cattle, induce me also to confine my hogs. My farm is situated very near a good market, and is so small that I can allow no part of it as pasturage, either for cattle or hogs. Every foot of my land is constantly in some crop, either for home consumption or to be disposed of at market. Under these circumstances I resort to soiling, and in other respects make my stock as comfortable as I can. But it would add much to their thrift, if, in addition to their other care, I could allow them, particularly in warm weather, the indulgence of pasture, shade and running water. But notwithstanding these privations, I hesitate not to say, that under my care "they do thrive through our long, hot and dry summers," so that they are a source of considerable profit to me, and I see no reason why they should not be still more profitable to those who are in circumstances to allow them greater advantages.

The "labor necessary to collect materials for them to work up into manure" is, when properly fixed for it, not very considerable. The materials are fully explained in the essay. I will now add that they are collected in the winter, when work is not very pressing; after showers of rain when the ground is too wet to stir it, and at such other times as we find most convenient. Such opportunities are taken to store away large amounts, and then the labor of distribution is very trifling. This manure, though "mixed with large proportions of mud, dirt and litter," I consider as very valuable, particularly for corn, the great favorite of the hog. Its value would be much increased,

if to the mixture were added small quantities of lime, or larger quantities of ashes. I would not advise carrying it immediately to the field after removing it from the pen, but let it lie in heaps of 50 or even 100 bushels, until it becomes dry and comparatively light. In two or three months, and sometimes earlier, the vegetable matter will be pretty well decomposed, so that in digging into these heaps the whole will be found in a friable state, so as to crumble by the mere act of casting it into the cart. I now consider it as fit for use, and the next operation is to carry it to the field, where I find it of great service.

The next query is, "What will a farmer's pork cost him raised in this way, out of the immediate vicinity of a market?" To this I reply, that the cost of pork, either near to market or remote from it, depends very much on the following particulars: the price of corn, the thrift of the hog, the care that is taken of him, the quantity of food other than corn that is provided for him, and the constant economy with which he is fed, so that he will always have enough and waste nothing. My pork costs me, according to the best estimate I can make about $4 the 100 lbs.; and if the hog be a *thrifty* Berkshire—(and there is a great difference in the Berkshires,) about half that sum. In this estimate I take into the account the carcass of the hog and its cost in corn alone; for his extra food, care, &c., I consider as amply paid for by his manure.

But this subject is becoming irksome to me; not that I consider it unimportant, but simply because I have had occasion to write so much about it. I must therefore refer "A Young Farmer" and all others concerned, to a series of essays, which I wrote for the Southern Planter, and which appeared in that work in the volume for 1841. Mr. Charles T. Botts, the editor, will cheerfully (on forwarding to him a dollar) send the volume as directed.

"A Young Farmer" inquires, lastly, "What will it cost per acre to cut down the weeds, &c., for litter?" I answer, that in harvest mowers *here* also demand and receive one dollar per day. The usual task for a mower is one acre. But it is to be recollected, that the weeds are usually cut the latter part of September, or first of October, when the days are much shorter, and consequently the wages ought to be less. This work is commonly done by my own laborers, (for I sow no wheat,) and they do it immediately after gathering the fodder and cutting the tops. I once hired and paid 75 cents per day; but now I could get it done cheaper. But were the cost even greater, still I should feel myself amply compensated in collecting the weeds. I find they make the speediest, the richest, and the very best manure. The mules, the cattle, and even the hogs, eat them with avidity. In addition to this, there is a great convenience in having them stored away ready for use. In summer, when the crops are on hand, stables, hog-pens, &c., are often neglected, because we cannot spare time to send to the woods for litter; but here are the stalks of weeds which have been reserved for this very emergency, and it requires but little time in the morning or evening to distribute them. Thus, whilst the crops are busily engaged in exhausting the fields, the hogs, horses, &c. are as busy in manufacturing manure to repair the injury.

Connected with the above, there is one more inquiry still more important. "Is not the practice (of removing the weeds) injurious to the land from which they are taken?" This is very generally considered to be the fact, and at first view would seem to be the case. But after looking at the subject in all its bearings, I am decidedly of a different opinion. Now I do not pretend that the removal of a weed, or any thing else from the land, can benefit the spot on which it grew. But what do we accomplish by it? We produce an easy and convenient material, by which, even at the busiest seasons of the year, we can keep our stables and hog pens clean and healthy; and after answering this very important purpose, it answers another, if possible, still more important, it makes the richest and best manure. Then it cleanses the field, leaving it in a situation, in which the crop of young clover or other grass may make the greatest progress: and at the next harvest, instead of battering the scythe against hard dry weeds, there is a beautiful clean surface to cut over. Labor therefore is saved, and the crop secured is cleaner and in better condition. But what becomes of the weeds in the mean time? They are lost, it is true, to the spot from which they were taken, but they are not lost to the farm. After being charged with Liebig's ammonia, and other enriching properties, they are carried back to the field, and instead of *standing* here and there at intervals apart, or of *lying* thin, covering so large a space as to do almost no good, they are concentrated so as to display all their beneficial effects. And now I appeal to "A Young Farmer," and all others of equal candor, if weeds thus treated and used are not made to answer a more valuable purpose, than when left to injure the hay crop, or to fall and lie thin on the land?

And now having answered the inquiries of "A Young Farmer," whom, if he will allow me, I will call my friend, I must take a reluctant leave of him. But I hope to hear from him again over his own name. A mind so inquisitive as his cannot remain inactive, and when employed about farming, the first, the greatest and the best art, must lead to valuable results. But there is another correspondent in the same number (page 136) to whom it would be very uncivil and uncourteous in me to fail to pay my respects. And I take it as a very civil thing in the above correspondent, that he has had the candor to append his name to his communication. If Mr. Nicol will take the trouble to look to the end of this paper, he will also find my name there; and I now inform him, that the reason why the essay commented on by him appeared without a name was, not that I was ashamed of the piece, or wished its faults to be charged to another—not that I felt myself unable to sustain every position there taken, but simply for reasons which I shall not be at liberty to disclose till the meeting of our Agricultural Society, on the 25th day of May next. If Mr. Nicol will favor us with his company on that day, I will with much pleasure satisfy him on this point.

I proceed to consider this gentleman's strictures on my essay. "Passing, (says he,) over the preliminary observations of the writer I will begin with his stable management. I am not aware that any farmer or owner of a horse, who

pays a due regard to his own interest, the health and comfort of his horse, or to the most economical mode of making manure from that source, is in any doubt as to how long this (stable) litter ought to accumulate before it is removed; and that is, that it should be removed every day. The writer of the essay is, however, "of the opinion that it ought to remain until by its great heat it endangers the health of the animal." On this, I remark, that in the above sentence, I have been very unfortunate. I labor under the misfortune of not being understood. Now I acknowledge that it is one of the first requisites of a writer or speaker to make himself understood. In this instance, however, I am so unfortunate as to have failed. At this, I confess, I am a little surprised; for I used neither Latin, nor Greek, nor Hebrew, nor any other dead language, but the plain *living* English, and that too of the simplest kind; and yet Mr. Nicol has failed to understand me? He seems to think that the danger in the case must necessarily go so far as actually to *produce* the apprehended evil. Now I never intended to convey any such idea, and I did suppose that I had sufficiently guarded against any such construction, by what appears in the sequel. I intended that the litter should accumulate, and the decomposition go on, until the point of danger was reached, and then arrest it, by removing the whole mass. In the case of my "stable management," we will suppose that the heat increases, until a careful vigilant master sees that the apprehended danger will soon issue in the evil which he wishes to prevent, and promptly takes measures to arrest it; what misfortune, let me ask, can ensue in this event? Danger was *incurred*, it is true, but a timely preventive was administered, and therefore no evil ensued. But what is the object of supplying a stable with litter? It is, according to my theory, two-fold, first, to promote cleanliness, and second to increase the amount of manure. And now the whole matter is narrowed down to this one point. By what management can manure be most rapidly increased? Is it, by daily throwing it out in small quantities, as Mr. Nicol supposes every body does, there to be evaporated by the sun, or washed away by the rains, or torn to pieces by the hogs? Or if the hogs will let it alone, till it accumulates to a large amount, still to let it remain there, until full one half its virtues are destroyed by fire-fang? Or is it, to let it lie in the stable as I recommend, and, as I think, common sense recommends, safe from the sun, from the rains, from the hogs and fire-fang, until the health of the horse begins to be in danger, and then immediately remove it for use?

But on Mr. Nicol's plan, permit me to inquire, what becomes of the *liquids*, which according to late scientific authority is the very best part of manure. According to Liebig, who by the best farmers of England and America is now received as a standard authority in scientific agriculture, it is the ammonia which gives its chief value to manure, and this property is derived mostly from the urine. But from any thing that appears in his strictures, Mr. Nicol lets the whole of this run to waste. There is no litter to absorb it, for it is all thrown out every day, nor is there any cistern or tank to collect it.. This important article, then, imparting its chief value to manure, is, according to this wasteful farmer's plan, wholly lost. No wonder then (see page 99) he had to apply such very large quantities of marl, and of burned shells, to keep up the fertility of his land. Any man who will submit to such a waste at home, must resort to a large amount of foreign material to supply the deficiency. In my stable, I am happy to say, there is no such waste. The liquids are collected, and the solids are preserved; and this is done, whilst the health of the animals is carefully preserved.

I am truly sorry that my mode of pen-feeding cattle, comes also under the ban. To this plan, Mr. Nicol objects, because he "has never yet been able to secure that amount of cleanliness so desirable to the health and comfort of the animals so fed." As a set-off to this, I remark, that I have never been able to secure health and cleanliness on any other plan. This very season, I wished to make a beef of one of my steers, and that he might enjoy every advantage, I confined him to a stall. I gave him frequent supplies of litter, and at length was compelled to adopt Mr. Nicol's mode of daily throwing it out; but still every morning one flank and thigh of the poor beast was comepletely covered with his own filth. Whilst this was the case, the cattle that lodged in the pen, or selected their own place under the shelter, were quite clean. Besides, if Mr. Nicol will favor me with a visit, and I should be very happy to see him, I will show him what it seems is a stranger to him, a *clean* farm-pen. But fearing that he will not accept my invitation, I will tell him what sort of a farm-pen I have. It is situated on a gentle declivity, with a bank on the lower side, and through this bank is an aperture, which I can open or shut at pleasure. By shutting I retain the fluids, and by opening I can discharge them, when they become excessive. Now by this contrivance, and by what I speak of in my essay, large supplies of litter, (I mean large for a small farm,) I actually have a clean and comfortable farm-pen; and if Mr. Nicol will fix his farm pen in the same way, I venture to say that he will have cleaner and better contented cattle than he now has, when confined to their stalls.

But he also reads me a lesson about my hogs, and thinks my mode "of feeding will not suit the judicious hog breeder." When I came to this sentence, I was at once fully convinced that Mr. Nicol did not know against whom he was hurling his shafts. Why, sir, the hog business is my strong forte. If I excel in any thing, it is the skill with which I manage my hog department. My piggery with its inmates is the admiration of the whole country. It is well worth a trip from Sandy Point to visit it. I have just sold a fine young Berkshire boar just eight months old for $55, a pretty good price for a small farmer these hard times. I still have fine boars and brood sows, and thrifty shoats, and promising pigs. One word more; my neighbors will *laugh* at Mr. Nicol if he attempt to give me any more lessons about breeding hogs. With these remarks I dismiss all that he says about my hog-management.

But, as it appears to me, he is a little anxious to turn me into ridicule. Hence (page 137) he says, "I would ask the writer, when is manure thoroughly, properly, fairly, fully made?" Now I was not aware, till I saw all this array of epithets brought together, that I had made use of

one half of them. I must have had a kind of presentiment that I was writing for just such a person as Mr. Nicol implies himself to be, one who finds it difficult to comprehend. For to show what I meant by manure fully made, I unconsciously used no less than four different epithets all pointing to the same thing. Hitherto I have taken to myself no credit for any thing except my hog-management. Now, I begin to think, I deserve some credit for my ingenuity in avoiding the figure of speech called tautology, which is so offensive to every correct writer; for the terms thoroughly, properly, fairly, fully, though they *point* to the same thing, do not *mean* precisely the same thing. Now I will venture to say, that there is no farmer, great or small, young or old, who honored my essay with a perusal, but fully, thoroughly, fairly, properly understood its meaning—Mr. Nicol always excepted. But I really wish to enlighten him also. I shall begin to think much less favorably of myself as a writer if there be a single reader who does not *fully* (I beg pardon for using this word) understand me. I will again look over his piece, and see if I can find an easier term. I see he uses frequently the word "decompose." I will employ this, and see if I can make my meaning clear. By manure fully, &c., made, I mean vegetable matter which when mixed with animal excrement has undergone decomposition, so that the vegetable fibre is destroyed, and is reduced to a state of rottenness. When I find vegetable matter of any kind, leaves from the woods, wheat straw, corn stalks, weeds from the field, or any thing else in this state, I call it manure; and I consider it so valuable that I wish I had thousands of it on my little farm at this time.

But I am again incurring my common fault, making my paper too long. There is however one more point or which I must pay my respects to Mr. Nicol. At the close of his strictures, he says, "I have seen finely rotted manure, dry straw from the stack, and dry and recent leaves from the woods, applied to clover side by side, and the best results were from the covering of dry straw. I have also seen young wheat top-dressed with pine leaves (on marled land) with benefits, though of course less in degree, as distinctly marked as I have ever seen from the application of rotted stable and farm-pen manure." Now, let it be understood, that in commenting on and objecting to the above passage, I do not call in question a single fact there expressed; nor do I doubt that the writer firmly believes all he states. But does he mean that "dry straw from the stack and dry and recent leaves from the woods," remaining and continuing dry, will have a better effect on clover, than will rotted manure? I do not wish to do the writer the slightest injustice, but this really seems to be his meaning. The straw and leaves, it is true, were dry when applied, but they soon became wet, and the young clover having itself a great attraction for moisture, soon covered them, so as to screen them from the evaporation of the sun, and thus, being in a state of continual moisture, they underwent a rapid decomposition. In this process the gases were evolved just in the position and at the time to benefit the clover. Whilst this was the case, the rotted manure, made on the wasteful plan of Mr. Nicol, deprived of its valuable properties, remained there almost in an inert state; and this is the real reason why his straw and leaves produced a more beneficial result than his rotted manure.

There are some other matters on which I intended to comment, but this must do for the present. Whether I shall take them up hereafter depends on circumstances. J. H. TURNER.

ANOTHER MODE OF KEEPING SWEET POTATOES.

To the Editor of the Farmers' Register.

Prince George county, Va., April 8, 1842.

Having made an experiment in keeping sweet potatoes which has proved highly satisfactory, I think it might be advantageous to many of your numerous readers if they would adopt my plan, which is this, viz.: I selected a dry spot, around which no water would remain, and had the sills of my house (ten feet square) placed flat on the ground. I then had the earth dug out to the depth of 2½ feet, and as the earth was thrown out I had it thrown around the sills so as to raise it to a level with the top of them, and sloped off gradually, to turn the rain water falling from the eaves entirely away from the house. I then had the rafters, 2 by 6, nailed to the sills, and the gable end studs, also 2 by 6, fitted from the sills to the rafters; and the whole closely planked on the inside, and as the outside planks were nailed on I had the space between (which of course was six inches) filled in with earth, so that the air was entirely excluded, except at the door. I had two doors made, one to hang on the inside, and the other on the outside, so as to fill in between them with straw or pine leaves, if the winter should be very severe; but I used only the outside door, the winter having been so mild.

When I put my potatoes away, I had some old slabs placed at the bottom of the house, and then a layer of pine leaves, on which I put the potatoes, and after they were all put in, I had them covered thickly with pine leaves.

The eating roots were separated from the plantings, so that we might go in at any time, and get such as were wanted. They were put away on the day they were dug, and we got out such as were put away for eating, every day until some time in February, at which time the eating roots were all used, and I do not think one peck had rotted, out of about 30 or 35 bushels.

The plantings (which I took out a few days ago) also kept remarkably well. The only rotten ones which I saw seemed to be around the edges, where the mice had burrowed under the sills, and caused the dirt to fall in upon them. The mice were quite destructive to them in consequence of having no underpinning and floor, by which they may be effectually excluded.

I had one barrel filled with a particular kind, which I wished to keep separate from the others, and in this barrel I saw scarcely one rotten potato, although the mice had eaten nearly one third of them.

As this was only an experiment, I would not incur the expense of underpinning, &c.; but as the result has proved so satisfactory, I intend to have the house underpinned, and a brick floor laid in

strong mortar, to prevent the mice from getting in.

I have no doubt that saw-dust would be preferable to earth for filling in between the rafters, &c., as the timbers would be less liable to rot, and the saw-dust, (if packed in closely,) would as effectually exclude the air, and at the same time have a tendency to absorb any moisture arising from the potatoes in going through a sweat.

The greatest advantage in this plan is that you may get your potatoes to use just when you please, without the fear of having them injured, except in the severest weather in winter, during which time I think it might prove injurious to open the door at all, except in the warmest part of the day.

J. H. Batte.

OF MIXED EARTHS AND CREEK MUD.

From the Transactions of the Society for Promoting Agriculture in the State of Connecticut.

What experiments have been made of creek or harbor mud from the sea flats? what of mud taken from fresh-water ponds? what of the soil taken from swamps overflowed? How have they been used? on what soils, for what crops, for what grasses, in what manner, in what quantities, and what advantage has been derived from them?

Mr. Belden, of Wethersfield. A piece of land in my neighborhood was manured with earth that had been leached to make saltpetre—the earth had been leached ten years before—the land has borne surprising crops ever since this earth has been applied. I have never witnessed so great and lasting effects from any species of manure.

Mr. Hart, of Berlin. One of my neighbors carried on to his upland mowing a number of loads of earth from under an old barn. It has improved his land surprisingly. For several years the crop has been very great.

Mr. Abel Bronson of Waterbury. I have tried the earth, taken from the ditches in my meadows, but never found that my land received any benefit. I have carried large quantities into my hog sty and barn yard, in autumn, and in the spring have manured my Indian corn with it. I have found a load of this mixture of the earth and manures, as beneficial as a load of unmixed manure, from the barn yard or the sty. I have used the mixture, when it has lain in this situation a year, and never found any dung better.

—

Of yard or stable dung—tanner's bark, &c.

What methods have been taken to augment the manures taken from the yard or stable? What means have been found to succeed best for that purpose?

Mr. Andrew Hull, Jr., of Cheshire. I have found no manure so beneficial, on poor land, for potatoes, as the droppings of the cattle intermixed with straw, thrown into the yard to make manure, even before it is matured.

Mr. Abel Bronson, of Waterbury. I have thrown pumice, tanner's bark, &c., into my hog sty, and found them to become very good manure.

Mr. Blakesley of Plymouth. More than twenty years past, I had a large nursery of fruit trees. To prevent weeds, &c., from growing, I covered the ground over with tanner's bark. It prevented every thing but the trees from growing. After some years had elapsed, when the trees had all been taken from the nursery, I sowed the land with oats and clover. The oats were good, and the clover excellent. Since the clover has gone out, the natural grass has come in, and the land has continued as good as any I have. I have found bark one of the best kinds of manure.*

I find, from experiment, that two loads of dung, carried on the land in the spring, are worth three loads carried on in the fall.

—

Ploughing in of clover, or buckwheat.

Have any experiments been made of manuring land with clover, buckwheat, or oats turned, or ploughed into the earth before they were ripe; and has any benefit been received?

Mr. Hart, of Berlin. I have made an experiment in ploughing up a field, on which I had two years before sown clover. The clover was mowed and yielded a good crop. Soon afterwards I ploughed the field and let it lie until I found that the clover had matured. I then ploughed it again. The land looked very well, and I supposed it much enriched. I sowed wheat, but was disappointed in it, for the crop was poor. I knew, however, that the land was much enriched, and concluded that I was prevented from having a good crop of wheat from other causes than the land not being well prepared.

Mr. Phelps, of Simsbury. I ploughed up a clover field, the second year after it was sown, when the roots were full grown. It was about a fortnight after mowing the land. I let the field lie in this situation about six weeks, then harrowed it well—sowed it with wheat, and ploughed in the wheat. The next year I harvested as much as twenty bushels to the acre. The soil was rather dry and sandy.

Mr. Hooker, of Farmington. I sowed a sandy field with buckwheat. When it was grown and in bloom, I ploughed my field in ridges, and covered the wheat. After it had lain about six weeks, I ploughed it again in ridges, putting the new ridges where the balks were before. Soon after I harrowed the field, and sowed it with wheat. The next summer I harvested an excellent crop.

Mr. Belden, of Wethersfield. I have sown buckwheat, both on sandy land and on loamy land, and ploughed it in to prepare the land for wheat. I have had good crops from it, and have found the experiment to succeed to my wishes.

SUGAR FROM CORN STALKS.

Extract from an editoral article of the New Genesee Farmer.

Another great article of product spoken of in the report,† is that of sugar from corn stalks. "A new mode of raising corn, trebles the saccharine quality of the stalk." This is certainly an extraordinary discovery. The stalks of corn, if

---

* Tan bark is injurious to soil before it rots; then it is excellent.—Ed. Gaz.

† Of the Commissioner of Patents.

gathered before the ear is formed, it is here stated, yield of saccharine matter three times as much as the beet, five times as much as the maple, and fully equal, if they do not exceed, that of the ordinary sugar cane in the United States. "One thousand pounds of sugar, it is believed, can *easily* be produced from an acre of corn. It has been ascertained, by trial, that corn on being sown broad cast [and so requiring but little labor, comparatively, in its cultivation,] will produce five pounds per square foot, *equal to* 108 *tons to the acre for fodder in a green state*; and it is *highly probable* that when subjected to the treatment necessary to prepare the stalks, as above described, in the best manner for the manufacture of sugar, a not less amount of crop may be produced. Should this prove to be the case, *one thousand weight of sugar per acre, might be far too low an estimate.* Should the manufacture of sugar from the corn stalks prove as successful as it now promises, enough might soon be produced to supply our home consumption, towards which, as has been mentioned, at least 120 millions of pounds of foreign sugar are annually imported, and a surplus might be had for exportation."

These statements may well be called startling; but we must be pardoned if we consider them, in some measure, of the *multicaulis* variety. We have a high respect for Mr. Ellsworth; we believe there is not a better officer in the government; and that no man living would be more reluctant to make a misstatement than himself. But we want a good many more facts and experiments in the case, before we can yield entire confidence to such predictions. The whole, for aught that appears, grows out of a statement of a Mr. Webb, of Delaware, given in our November number, who obtained from a small piece of ground at the rate of 100 lbs. of sugar to an acre, and who states that further experiments showed conclusively that the produce *might* be increased ten-fold. Now we have no desire to question Mr. Webb's veracity; but it will be observed in the first place, that he has not yet obtained 100 lbs. to an acre, but only at that rate; and in the second place, that although experiments to him have conclusively shown that a thousand pounds may be obtained to an acre, yet we do not know what those experiments were, and the conclusion is matter of inference or private judgment. We shall be exceedingly glad to be set right on this subject.

The calculation of producing green corn fodder at the rate of 108 tons to an acre is, we believe, more easily asserted than proved. We should like facts in this case much better than conjecture.

Tall meadow oat grass has yielded, green, at the rate of 16,335 lbs. per acre, and dried, 5717 lbs. Millet has yielded, green, at the rate of 12,251 lbs. per acre, and when dried, 4747 lbs. Herdsgrass, when green, 40,837 lbs., and dried, 17,355 lbs., or when cut after the seed is ripe, 19,397 lbs. A crop of herdsgrass producing when cured 17,355 lbs., is indeed enormous; and what very few among us have ever seen, less than five tons being the largest measured crop which has come within our knowledge. We have never known a crop of green corn fodder weighed, when cut for fodder, but we have given in our last No. the weight of an acre of corn fodder of the gourd seed variety, when cured, including husks, and yielding 66 bushels of grain per acre, and the whole amount of that was 2 tons, 13 cwt., 13 lbs. In the case of herdsgrass, the proportion of green weight bore to the dried as 40 to 17 or as 20 to 8 tons. If we may infer any thing from this fact in regard to Indian corn, we may reckon the green fodder from such a yield of corn as 6 to 7 tons. It would, however, be much more than this, if the corn had been sown broadcast; and perhaps may be quadrupled. Conjecture, however, is idle in a case where, we hope, we may soon have facts. It is supposed in the case of the report, that the corn is to be sowed broad cast and yield at the rate of five pounds to a square foot. This is a remarkable calculation; and if corn is sowed thus thickly, how is it to be got at to pluck off the ears, which is said to be a necessary part of the process? A few months however, will settle this; and if an acre of corn, by the mode described or any other mode, can be made to yield five hundred pounds of sugar, we shall throw our hats up as high as any one in the crowd.*

SOMETHING ABOUT WESTERN PRAIRIES.

By Solon Robinson.

Extract from the American Agriculturist.

I am sorry that I am not able to answer the second question, even satisfactorily to myself. But who that ever undertook, ever satisfied his inquirers as to how a prairie looks, while in a state of nature. The reason is that there is nothing analogous, to which one can compare it, in a thickly settled country. But suppose that the reader fancies the country with which he is best acquainted in an old settled country, entirely destitute of buildings or fences, or in fact any mark of civilization, with all the hills reduced so as to make a gently rolling surface, the woodland to remain as it is, and the entire surface of cleared land covered with grass—that upon the upland thick and short, and in the low lands one or two feet high, and in the swamps four or five feet, and he may have a very faint idea *how a prairie looks.*

So you see they are not so "very level." Gently undulating, applies to all prairie countries within my knowledge. Sometimes, though rarely, hills occur that are too steep to cultivate conveniently, and sometimes rocky bluffs. But a general characteristic in this region is destituteness of stone, except a few boulders of granite, that have come from parts unknown.

The streams are most generally muddy bottoms. The timber in the groves or islands that abound throughout this sea of grass, is most commonly short, and grows thin upon the ground,

---

* Since penning the above, we have seen it stated in some exchange paper, that forty tons of green corn fodder were obtained from an acre in Worcester Co. Mass.; and at a late agricultural meeting in Boston, the editor of the New England Farmer is reported in the Ploughman to have said that he understood that 100 tons of green corn had been cut from a single acre at three cuttings, in a season, and he had known 37 tons cut on an acre at one time.

We have no disposition to impugn these statements in the smallest measure; but we should be exceedingly glad to know when and where these crops were produced; and how and when the amount was ascertained.

without underbrush, except at the edges, where the hazel bush seems to be the advanced guard, and is constantly encroaching upon the prairie. There are large tracts of timber land called "barrens," which are about half way between prairie and timber land—the tree standing apart like an orchard, and the ground covered with grass, the sod of which is much less tough than that on the prairie.

One very prominent feature of a prairie, I should mention, and that is the constant and ever varying succession of flowers from spring till fall.

A singular and false notion prevails about the height of the grass, and that it must be difficult getting about. It is not even difficult for a sheep, as the grass never grows high enough upon the dry land to impede or hide them. Near the banks of streams, or in marshes, it is like going through a field of oats or wheat. And it is in such places that grass is cut for hay—some very good—some good—and some that the less said about the smaller the sin committed.

But as for pasturage, no country can excel this. The milk, butter, cheese and beef attest the rich juiciness of the feed. But we lack the beautiful blue grass pastures of Kentucky, for fall feed. Even now, near the middle of December, notwithstanding we have had a hard fa'l for this country, this grass is green and good. Even timothy or red top would yet afford "a good bite."

The next wonder is about ploughing. And if, my dear reader, you who have ploughed so many acres of greensward with old "Duke & Darby," could only see a "prairie team," you would wonder still more.

Fancy upon a level smooth piece of ground, free from sticks, stumps and stones, a team of four, five, or even six yoke of oxen, hitched to a pair of cart wheels, and to them hitched a plough with a beam fourteen feet long, and the share, &c., of which weigh from sixty to one hundred and twenty-five pounds, of wrought iron and steel, and which cuts a furrow from sixteen to twenty-four inches wide, and you will figure the appearance of a "breaking team" in operation. If you ask me if this is necessary, I can only tell you that I suppose it is, for it is *fashionable.*

I do believe though, that a smaller plough and less team would be better for the land, though it is said it would be more expensive ploughing. It is true that the sod is more tough than can be believed by those who have never ploughed it. It requires the plough to be kept very sharp, and for this purpose the ploughman is always provided with a large file with which he keeps a keen edge as possible upon the share and coulter.

Such a team ploughs from one to two acres a day, usually about four inches deep, which is not near down to the bottom of the roots, so that the sod turned up affords but a scanty covering for grain that is sowed upon it at first, yet, very fine crops of wheat are raised in this way. It is also a common practice to break up in the spring and drop corn in every second or third furrow, and from which twenty or thirty bushels to the acre are often gathered, nothing having ever been done to it after planting. It takes two or three years for these sods to become thoroughly decomposed, and then the soil is of a light, loose, black vegetable mould, very easily stirred by the plough, but of a nature that it adheres to the plough in a troublesome manner. In fact, no plough has ever been found to keep itself clear; and the ploughman is generally obliged to carry with him a small wooden paddle, with which to clear off the adhering mass of dirt upon the mould board. With this exception, the prairie soil is generally one of the easiest in the world to till, and of course remarkably fertile.

By far the greatest portion is based upon a subsoil of clay, though in many places the subsoil is sand or gravel, and there are large tracts of which the surface is of this material. The streams are often broad and nearly covered with vegetable growth, in some instances to that degree that sheets of water many rods wide actually burn over during the autumnal fires.

Notwithstanding the many "interesting accounts of burning prairies," the fire upon a dry prairie in a calm time does not blaze as high as it would in an old stubble field. But in the marshes or wet prairies, it sometimes rages with most magnificent grandeur.

MARLING IN SOUTH CAROLINA.

Extracts from an Address to the Pee Dee Agricultural Society, by Dr. M. McLean.

There is another source of fertilization accessible to the planters, on and near the Pee Dee, which I can now only name. I mean the limestone and marl which are found in quantities inexhaustible on the very banks of the river. The subject is almost new to many of us, and one in which we are deeply interested. If time allowed I would dwell at some length upon it. Those who wish information in regard to it, are referred to the Farmers' Register, and the valuable Essay on Calcareous Manures, by the able editor of that excellent periodical; a work which ought to be in the hands of every member of this society, and every planter on the river.

Before closing I shall state an experiment made last season with the Pee Dee marl, by a Mr. Cunningham of Marion, on whose land a bed of it is found. It was spread at the rate of 200 bushels to the acre, on part of an old field of sandy soil, which had once been exhausted, and then suffered to lie out till it became covered with a growth of young pines. The marl was applied the second year after the land had been recleared, and the crop planted was Indian corn. Upon measuring the crop after it was gathered, the yield was found to be exactly double that of adjoining land of the same quality, planted at the same time and cultivated in the same way. This information I received from a gentleman of intelligence and respectability, who saw the crop growing, and saw the corn measured when it was gathered. Not knowing that I should use the information in this way, it did not occur to me to inquire what was the yield to the acre; but my informant stated that the growth was very luxuriant, that the number of stalks in the hill was two; that the corn succored freely, and that on some hills he counted as many as seven good ears, some of them on succors.

Lime can be delivered on the banks of the river, not far from Marr's bluff, at one dollar per barrel; and at a less price, if the purchasers furnish boxes in which to receive it. Marl can be shoveled from the bank into flats or boats lying in the river; and according to the best information which I have been able to collect, it may be delivered on the river bank at this place, at a price not exceeding 5 cents per bushel. Now, supposing 200 bushels of marl per acre, to double the planters crop, without increasing his labor of cultivation, whether, in that case, it would be a profitable operation for him to purchase it at that price, haul it to his plantation and spread it out, is a matter of calculation which every one may make for himself, in his own circumstances. The fertility imparted to soil by lime is more durable than that imparted by perhaps any other manure. The effect of its application to lands in Virginia, 50 and 60 years ago, are yet manifest, by the superiority of the crops produced by these lands, compared with those produced by adjoining lands. Lime seems to effect a permanent amelioration in the texture and qualities of the soil.

NO GUESSING—CUTTING OF HAY.

From the New England Farmer.

Mr. Editor—Much has been said and written upon the advantages of cutting fodder for cattle. I have frequently heard it said that to cut the feed for cattle, was a saving in the amount eaten of from 20 to 30 pounds to the hundred. An assertion to this amount, I not very long since read in your valuable paper. It appears to me some men *live for the sake of farming*, while others farm for the *sake of a living*. I get my bread by the sweat of my face, and have long since learned to receive cautiously the views of those who give experiments to the public from what "*my man*" says. I never was persuaded to be at the expense of cutting fodder for my stock, until the past winter. In the early part of last winter I purchased one of Green's machines for cutting straw and hay. After having learned my cattle to eat cut feed, (for I was obliged to learn them,) I commenced what I considered an experiment that would prove the loss or gain of cutting fodder. I weighed, cut and fed myself, with the exception of three or four days, when ill health prevented. And now if you think my experiment will be of use to my brother farmers, you may give it a place in the N. E. Farmer.

In 1840 I was unfortunate, and nearly lost my grass seed by the drought, so that in 1841, my crop was full half sorrel mixed with clover. Upon this hay I fed my cows, with the addition of now and then a foddering of corn stover. I commenced with two cows, the 29th of January, giving them all they would eat for seven days; at the end of which I found I had given them 270 lbs. All that remained of what I had given them, and which they refused to eat, was 3 lbs. Actually consumed, 267 lbs.

I then fed without cutting for seven days. At the expiration of this time, I found I had given them 290 lbs.; and there remained of what they refused to eat, 30 lbs. Actually consumed, 260 lbs.

I then put two cows more with those above referred to, and fed them on fine hay and herdsgrass for seven days, without cutting, and found there had been given them 491 lbs. There remained which they refused to eat, 45 lbs. Consumed, 446 lbs.

I then put them seven days on the same hay cut and mixed, and found I had given them 454 lbs. There remained of that which they refused to eat, 20 lbs. Consumed, 434 lbs.

It will be seen that in the last case, 37 lbs. more was given to the four cows of uncut hay, and 16 lbs. more was eaten than of that which was cut. This I account for in the change from the poorer to the better hay. Had the good hay been given first cut and then whole, the difference would have been the other way, in all probability; for the two weeks succeeding, they consumed a few pounds more of cut than of whole hay.

Perhaps you may suppose that by this time, my hay cutting machine is stowed safely away in some back corner, as lost and useless. But this is not the case. But I am thoroughly convinced that there is no saving in the quantity of hay by cutting. Nor do I believe that good clean hay pays the expense of cutting for any stock, unless it be for a horse. But coarse clover and coarse meadow hay pay well for cutting because cattle will eat *more* not *less*. I have cut and mixed these two kinds of hay, and if the condition of my cattle may be admitted as evidence of the benefit of cutting such hay, it is proved to my satisfaction. Yours, respectfully, OTIS BRIGHAM.

Westboro', 24th March, 1842.

☞ Mr. Brigham is worthy of all confidence. He has here given very valuable statements. The facts surprise us. We had supposed that there was more actual saving from cutting food for our cattle—but the statements of the scales must be taken;—a single tale from them is worth a thousand guesses. In one important respect this trial is deficient: the *time is not long enough*. To show that other trials have resulted differently, we copy the following statement:

"*Mr. Benjamin Hale's account of the saving made by the use of straw cutters, employed to cut hay and straw, as fodder for horses.*

Mr. Hale was proprietor of a line of stages running between Newburyport and Boston. He says:

The whole amount of hay purchased from April 1 to Oct. 1, 1816, (6 months,) and used at the stage stable, was - - -	*T. cwt. qr. lb.* 32 4 0 10	
At $25 per ton, (the lowest price at which hay was purchased in 1816,) -		$800 00
From Oct. 1, 1816, to April 1, 1817, whole amount of hay and straw purchased for, and consumed by the same number of horses, viz: - - - -		
Straw, *T.* 1 13 3 10	$160 23	
Hay, 13 14 1 00	350 00	
	$510 23	
Deduct on hand April 1, 1817 by estimation four tons more than there was Oct. 1, 1816, at $25 per ton,	$100 00	—410 23
Saving by the use of the		

straw cutter, four months of the last six months, or the difference in expese in feeding with cut fodder and that which is uncut, $389 77

Mr. Colman, if we are not mistaken, has somewhere given an experiment for three months, by which he made the saving 50 per cent. or more. —*Ed. N. E. Farm.*

ROLLING WHEAT IN THE SPRING.

From the New Genesee Farmer.

Mr. Colman—It is evident that much of the wheat through the country, especially on moist mucky lands, is injured by the frequent freezing and thawing during the past winter. Unless something can be done to remedy the evil, to some extent, we have to fear quite a failure in the coming crop.

Farmers may say that they have done all that they can do to secure a crop; but there is one thing which, if done in season, may effect a great saving. Let every farmer who has not one, provide himself with a good roller, and as soon as the season of freezing and thawing is over, roll his wheat fields thoroughly, and I have no doubt that it would save thousands of bushels of wheat in Western New York, the present season. Farmers! try it, leaving a part of a field unrolled, and give to the community the result of your experience at some future time. M. N.

Genesee Co., March, 1842.

Editoral Remarks.—Rolling and Harrowing Wheat.—The above advice is seasonable, and, we have no doubt, judicious. We should recommend something more than rolling; and that is, harrowing before rolling. As soon as the land is well dried, give your wheat fields a good harrowing, by passing over them with a horse harrow or one not too heavy; then roll them. In a fortnight or three weeks more go over them again with a harrow and a roller. Do not be afraid of destroying your wheat. Unless your harrowing is too heavy you will not displace or pull up many plants; and the advantages which those which remain will derive from the operation, will be a full compensation for any loss in this way. We have fully tested this matter more than once, having harrowed our wheat crops twice in a season, and after the plant was eight or ten inches in height; and with decided advantage, having left in such cases parts of the field untouched with a view to determine the expediency or inexpediency of the operation. The result has been highly beneficial. The effect of it is, by stirring the ground, to bring the air to the roots of the plant, and to loosen the soil so that they may extend themselves freely. This induces a vigorous vegetation, and causes the plant to tiller abundantly and throw out numerous shoots from the crown. We advise to harrow only in one direction. The rolling will serve to break the clods and to fix the plants, which are thrown up, in the ground. In England, wheat is frequently sown in drills with a machine adapted to the purpose; and afterwards cultivated by a cultivator, contrived to pass through and loosen the soil in the rows, as we plough and cultivate between the rows of our Indian corn. This is said always to be beneficial to the crop, though with our imperfect means such refined tillage can hardly be looked for, and, with prices of labor among us, might not be compensated.

We have yet to learn the value of constant tillage to the growing plant; and believe it would be found of the highest importance to our Indian corn to plough and cultivate it much more than we do. These suggestions coincide with the true philosophy of vegetation as far as it is understood, as such tillage causes a discharge of ammonia from the decaying vegetable matter in the soil, and quickens the receptive powers of the roots and leaves of the plant to take it in.—[Ed. N. G. F.]

ERRATA.—The article "On the different schemes of rotations," p. 175, was printed during the absence of the editor, which caused some typographical errors to appear, which otherwise would have been corrected. The only one, however, which affects the sense, is the word "*corn*," in line 23, col. 2, p. 176, which is a misprint for "come" in the manuscript. The reader will please mark the correction.

CONTENTS OF THE FARMERS' REGISTER, NO. IV. VOL. X.

ORIGINAL COMMUNICATIONS.

	Page
The farm and farming of the Rev. J. H. Turner, Nos. 2 and 3,	150, 154
Farming at Westover,	169
On the different schemes of rotation,	175
Remarks on the present condition and operation of the banks of Virginia, and their prospects,	179
Remarks in reply to inquiries and strictures,	185
Another mode of keeping sweet potatoes,	187

SELECTIONS.

	Page
Ashes as manure,	145
To make hens lay perpetually,	146
Grain—Practical hints,	146
Protection of corn against crows,	147
Forcing fruit trees to bear,	148
An essay on the best system of rotation of crops, (hogs,) pork being the chief surplus of the farm	148
On gayting clover,	158
Further contributions to our resources in manure. Stercorized bark for nitrogen and phosphates,	158
An essay on the importance and proper manner of rearing sheep, suited to the condition of Kentucky,	159
Oil and stearine from lard, &c.	173
Opinions of northern farmers concerning lime,	178
Of mixed earths and creek mud,	188
Sugar from corn stalks,	188
Something about western prairies,	189
Marling in South Carolina,	190
No guessing—cutting of hay,	191